PERSONNEL

May, 1953

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Improving Conference Discussions
Setting Piece Rates on Repeat Jobs

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Personnel

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Why are Executives Changing Jobs?

HIGH TURNOVER among key men in industry is a threat to management's growing investment in executive training and development. Yet that turnover, noted by PERSONNEL last year,[1] is on the increase. How extensive is it? What are its causes and its cures?

PERSONNEL reported in September that executive turnover rates show the sharpest rise during periods of economic expansion or national emergency. Thus, in the emergency years 1941-5, only 371 out of 1,000 executives stayed on the same job during a 12-month period, compared with 503 out of 1,000 in 1946-9. As business expansion and emergency conditions have continued, executive turnover has increased at accelerated rates, new data now indicate.

Comparing 1,000 executive jobs in 100 companies during two five-year periods, one prewar and one postwar, the management consultant firm of Booz, Allen & Hamilton has found that industry has been adding executives 46 per cent faster postwar than prewar but has been losing them 29 per cent faster.[2] The survey shows that the share of executive losses attributable to death and retirement remained almost stationary at 56 per cent while the pace of losses for other, controllable reasons went up almost one-third. Studies of the job patterns of the alumni of several colleges similarly indicate that most of the controllable turnover among executives is due to switches from one company to another.

"Of the men who graduated in the late Thirties, the number who have worked for only one corporation are in a minority (between 20 and 35 per cent)," *Fortune* reports.[3] "A hefty majority have changed jobs two or three times; among men 15 years and more out of college the men who have worked for four or more corporations is likely to outnumber those who have worked for only one."

The situation may grow worse, according to a Harvard Business School study, reported in *Fortune*, of alumni of selected classes since 1911. For example, only 22 per cent of the members of the 1936 class have remained with one company since graduation; 26 per cent have worked for two companies; 24 per cent worked for three; and 28 per cent have had four or more employers. Interviews with members of more recent classes show that they have little intention of reversing the trend.

Postwar job changes have been particularly marked in durable goods industries, the Booz, Allen & Hamilton survey shows. Before the war, rates of change were higher in the non-durables. The turnover problem in the durable industries has been particularly great in electrical machinery and fabricated metals; in the non-durable group it has been most marked in the apparel and paper industries. The report notes several exceptions to the general trend: executive employment has dropped in the stone, clay, and glass industry during both periods; turnover rates in rubber and petroleum have dropped sharply in the postwar period; and textile mills, which showed no perceptible net change in executive employment between 1938 and 1942, had a 9.6 per cent postwar gain, the highest percentage increase in executive employment among the industries covered.

Why are executives switching jobs? Postwar economic expansion has obviously opened up more jobs and has consequently accelerated the movement of executive personnel.

But in addition, interviews with the executives in the B. A. & H. survey group

1 "Executives on the Move," PERSONNEL, September, 1952, p. 110.

2 "The Growing Problem of Executive Turnover." Booz, Allen & Hamilton, 135 South LaSalle Street, Chicago 3, Ill.

3 "The Transients," by William H. Whyte, Jr., *Fortune*, May, 1953, p. 112.

suggest that many executives feel that avenues of advancement are not sufficiently open and the chances of assuming greater responsibilities are not promising enough to enhance the prospect of staying with a single company.

Although dozens of reasons were given by executives for their job changes, four predominated. They were: (1) the wish to step up immediately to a bigger job with more responsibility; (2) find greater opportunity for future growth; (3) obtain increased income; or (4) terminate an unhappy situation involving policy differences.

If management is to hold on to the personnel it has carefully trained, if the costs and wasted effort of executive turnover are to be reduced, the limits on advancement within a company—whether actual or illusory—must be removed. The B. A. & H. survey report suggests that companies might weigh the need for a sound, flexible plan of organization; a balanced program for selecting, training, and developing executives; and a compensation plan tailored to meet the personal goals of the individual executive.

Wage or Work Guarantees: The Record to Date

LABOR'S BIG, NEW BID in the future will probably be for some form of wage or employment guarantee to rule out the possibility of mass joblessness in any future recessions. Last year the steel workers submitted their proposal for an annual wage guarantee. The auto workers are currently blueprinting a guaranteed yearly wage proposal, for presentation to employers well in advance of 1955 contract negotiations. Other unions in the basic industries, though less sure what form their plans will take, indicate their intention to have them. The feasibility of these proposals will, of course, be open to wide debate.

As has been pointed out in an earlier AMA report,[1] guarantee plans involve certain difficulties of application which may, in the long run, hinder full employment. Business risks, for example, may be increased and the entry of new firms or the expansion of existing ones may be made more difficult. Firms may hire a smaller number of workers or delay introducing labor-saving devices. Make-work may be necessary to keep the guarantee in operation.

Labor has countered that it is interested in work, not "pay for idleness." Its spokesmen argue that, as fear of unemployment is reduced, purchasing power is maintained and output holds its own or increases; and that guarantees may cause turnover and unit overhead costs to fall.

Waldo E. Fisher, professor of economics at the Wharton School, points out[2] that before considering annual wage or employment plans, industries must carefully study their individual record of fluctuation in employment, sales, and production. He believes that employment regularization could be considered even if no wage guarantee is contemplated, because the costs of guaranteed employment can be in large part offset by reduced unemployment compensation taxes, overhead costs, and restrictive or make-work practices; by a more versatile workforce; and by the fact that less fixed capital is needed per unit of output when regularization is achieved.

Thus far, wage guarantees have been confined largely to the service, distributive, and non-durable consumer-goods industries, which are less affected by cyclical fluctuations in employment than are the durable-goods industries.

A recent report of the Bureau of Labor Statistics[3] on a sample of nearly 2,600 collective-bargaining agreements showed that only 184, or 7 per cent, provided for a guarantee of any type. Those plans which did exist were generally very limited, with the majority giving much less than a full year's pay and including only particular groups of workers.

Only 20 agreements guaranteed wages

1 *Annual Wages and Employment Stabilization Techniques*, Research Report No. 8, American Management Association.

2 Fisher, Waldo E., "What Can Be Done About the Annual Wage?", *AMA Manufacturing Series No. 208*, 1953.

3 *Guaranteed Wage Plans in the United States*, Bulletin No. 925, Bureau of Labor Statistics, U. S. Department of Labor.

or employment throughout the year or a substantial part of it. Approximately 12,000 workers, represented by 15 different national or international unions, were involved.

Most of the 20 agreements guaranteed employment rather than wages and gave a minumum number of hours, days, weeks, or months of work but did not specify the amount of pay to be received.

A minimum workweek or a minimum weekly wage for all regular employees was provided by 115 agreements, chiefly in meat-packing, service, and distributive industries. Another 49 agreements, a large proportion of them in transit companies, had guarantees on a weekly, semi-monthly, or monthly basis but restricted these to particular occupational groups.

About a fourth of the agreements provided for termination or modification of the guarantee. The conditions most frequently specified were fire, accident, acts of God, and strikes. One agreement made continuation contingent on the maintenance of sales, another provided for arbitration of the employer's request for relief from the guarantee.

Thus at the current time collective bargaining agreements provide very little protection against protracted unemployment —an indication, perhaps, of the many practical problems which application of the annual wage idea poses.

"Career Conference" For Prospective Engineers

A LONG-RANGE educational experiment, designed to help alleviate the critical shortage of engineers, got under way at Schenectady recently with a "career conference" of some 400 high school students, their counselors, and a group of General Electric engineers. The highlight of the conference was an intensive question-and-answer session at which a group of selected students fired a barrage of prepared questions at a panel of General Electric engineers.

The panel emphasized the importance of choosing a career, not on the basis of available jobs or monetary rewards, but rather for the enjoyment to be expected from the work itself. However, the student who chose engineering as his course of study, it was pointed out, would have certain advantages: All industries are currently bidding at a high competitive level for engineers. Moreover, an engineering education is of great value in almost any type of work, since industry looks for graduates who have had analytical training, and engineering normally affords a person the great satisfaction of being able to see the results of his work.

With the draft and the possibility of universal military training in mind, the speakers encouraged students to accumulate as much education as possible prior to entering the services. They expressed worry over the widespread attitude among high school students that if they did not have the money to attend college, or could not win a scholarship, they should immediately drop the idea of a college education. In general, it was thought that any student should be able and willing to finance at least one-third of his college expenses through summer jobs and part-time work during the school year.

Panel members remarked that extracurricular activities were important in broadening one's personality. "Most industrial recruiters," they said, "look very closely at a graduate's activities while in school." However, they warned against participation in too many outside activities or working too many hours at part-time jobs.

As a result of the interest shown in General Electric's first career conference, subsequent sessions for students down to the ninth-grade level are now being considered.

AT THE Pacific Mutual Life Insurance Company, the suggestion plan is administered by a rotating committee of employees appointed quarterly. This committee has full authority to select winning ideas and determine number and amount of awards. The suggestion plan has been functioning successfully for nearly six years and has been consistently productive of sound ideas for improvement of the company's office practices.

Group Training in Higher Management Development

RICHARD R. CROW

Director of Personnel Development
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While executive development programs tend to emphasize the individualized approach to training, some management skills and attitudes can best be acquired and practiced through group interaction. The author discusses here some ways in which to isolate specific management training needs and suggests criteria which have proved helpful in determining when to apply group training methods. He then reviews five basic group training methods and their specific application to management development.

THE DEVELOPMENT of management ability is a complex task, and there is no simple answer or single approach. Thus the possibility of achieving success is enhanced by utilizing many approaches to the problem, rather than concentrating on one method.

When considering group training as a technique in higher management development, it must be kept in mind that there is strong evidence that on-the-job experience under competent coaching and tutelage by the "boss" is the major factor in the development of successful managers. However, the major concern of this article is not the problem of who should do the development and training, but the *when* and *how* of using group development to improve management ability, regardless of whether the "boss" or an alternate person is doing the training and developing.

Group training techniques have been widely used at the supervisory level within business and industry, and to an extent their use has permeated management development at the higher levels. However, at the higher management levels the specific needs of the individual have been stressed so much that in many cases the beneficial results of group management training have been overlooked. In fact, many people are tending to restrict group training and development to management training in the lower and middle management levels. This has tended to limit the use of group training for higher management and executive personnel. Some now feel that this limitation on group training is not warranted and that there is a place for group training as a means of development at the higher, as well as the lower, levels of management.

In considering this problem it is necessary to define what is meant by training as a technique. Frequently, group training is thought of as assembling management people together for group learning and instruction. As this has some limiting factors, perhaps there is a deeper meaning.

A study of any management group would reveal that there are similar training needs shared by many managers in

the group. Many of these shared needs can be satisfied by grouping those individuals with common needs and instructing the total group. (It is, of course, possible that these needs could be satisfied just as well on an individual training basis.) For example, if a group of sales managers all needed training in cost accounting they could very well be instructed as a group. Also, group training frequently is used to explain a new labor contract to management people. In these and many similar cases, group training is used to save time, but training could be done just as effectively, even though less efficiently, on an individual basis.

Value of Group Dynamics

However, this article is not concerned with training that can be done on an individual basis, but only with management skills or attitudes that can best be acquired and practiced through group learning or association. For example, in the area of attitude change or development, the group technique can be used effectively. If a manager's superior has had difficulty in developing a cooperative attitude within that manager, the group technique can frequently help in developing the appropriate attitude. Some managers' attitudes and opinions can be changed more easily through group dynamics than on an individual basis.

Also, group training is desirable in developing within high-level managers a broad knowledge of corporate functions and their interrelationships in the company. It is frequently impractical to obtain this breadth of understanding at high levels through position rotation or individual coaching, as is attested to by the frequent use of executive committees at high levels for management and coordination purposes. To attain this breadth of knowledge, some organizations are using group meetings. For example, they bring a production man in as an active participant with sales and distribution managers to assist in solving sales distribution problems. The interchange of thinking and planning gives the production man a breadth of knowledge unobtainable on an individual instruction basis.

Through these and many other experiences, it has been found that the group training technique can fill a definite need when used properly at higher management levels. Through this type of group participation, an individual's attitudes and opinions can be developed and changed, and he can acquire broader knowledge and understanding of the overall functions of the business.

Study of Needs

No management development activity can be effective without some accurate way of pinpointing training needs for individuals, groups of individuals, and the organizational needs of the company. As the needs of groups and the needs of an organization evolve, they can be spotted by developing and practicing the following activities:

1. Study and analysis of the operating functions and responsibilities of each unit or group.
2. Establishing the alignment of functions by groups.
3. Appraisal of each management group relative to current function.
4. Appraisal of each management group's capacity to absorb new functions.
5. Inventory of each management group as to current status and potential.

The processing of the above activities will isolate many needs both of individuals and of the total organization, and it then becomes desirable to determine which of these can best be met through a group training activity.

The following criteria have proved helpful in testing the needs:

1. Does this need require the interchange of group opinions, ideas, and experiences?

2. Does this need require the development of skills that can best be taught or improved through group practice?

If these questions are answered in the affirmative concerning a given need, it then can be concluded that group training will assist in solving that problem.

Here are some examples of the type of development needs that have met these criteria:

1. Management skill in resolving differences of opinion existing in subordinate groups.
2. Obtaining improved sales and production coordination.
3. Developing the consultative approach in old line managers.
4. Building cooperation between groups of management people on the same level.

Kinds of Group Training

Most managers have acquired their skills, knowledge, and attitudes through one, or a combination, of the following methods: being told, through explanation or study; being shown, through demonstration; practicing or doing; discussing or consulting. Group training activities rely heavily on the last two—namely, practicing and discussing.

Here are some specific group training techniques now available:

Conference Technique. The conference or consultative approach is one of the fundamental tools of management. It is widely used by successful managers in staff and committee meetings, and it is also an extremely valuable and useful group training tool. This method relies heavily on the learning principle of discussion. Through discussion, it enables opinions and attitudes to be modified or altered, and facilitates the acquiring of that broad knowledge and understanding so essential in management leadership.

For example, the conference method has been used in training groups of managers in the application and interpretation of policy, and the consultative approach has been used by managers in training their staffs in the group solution of problems. However, it is still difficult for many busy executives to use the consultative approach in the solution of everyday problems, although that approach would be a real advantage in the group training of his staff or other subordinates.

Committee Assignments. Another technique is the committee assignment. The very nature of committee activity requires group investigation, group deliberation, and group decisions. These group activities in turn afford an excellent opportunity for participants to learn from each other, and in so doing to broaden the individual horizons of each member.

Many organizations have permanent corporate or staff committees on which individual managers can be placed for training purposes—for example, such committees as Finance, Purchasing, Production Planning, Management Development, and Sales Production Coordination. Also, special committees can be organized to deal with a particular problem on which members can be placed for training purposes to acquire broader knowledge—for example, Sales Distribution, Quality Control, and Appraisal Review.

Observing Group Performance. Every time a management problem is attacked or solved through group or committee effort, it affords an excellent opportunity for younger managers to observe the process, even though they are not qualified for complete participation in the solution. Here many business organizations are always asking the question: Is there any individual manager who could profit extensively by being an observer in a particular group meeting?

Case Study. The case-study technique is now being practiced in many advanced management programs, both within busi-

ness organizations and within universities. It is an excellent example of group development. Here each manager learns and modifies his thinking as he observes and listens to the point of view and solutions advanced by other managers.

Role Playing: Although here the actual participants in the role-playing experience are necessarily limited in number, it still is a technique requiring at least a small group of people to make it an effective learning device, and of course the critical review can be expanded to a larger group of observers.

Limitations to Group Training

Frequently it is said that group training has certain limitations at the higher management levels. Some say it is likely to lead to undue repetition and is likely to become too informal. Perhaps these are not really limitations of group training. Perhaps the reason group training sometimes seems to be unduly repetitious at higher levels is that only certain individuals really need it, and it should have been applied only to a selected few rather than to the total group. In other words, these may not be actual limitations to group training, but only the result of poor diagnosis of needs and the selection of the wrong trainees or training technique.

It would seem, then, that there is a place for group training at the higher management levels. For example, wouldn't it be undesirable to try learning to lead and participate in conferences on an individual tutoring basis? Doesn't a person have to acquire and practice this ability with groups of people? Thus there seem to be some skills, knowledge, and attitudes required by higher management men that can best be acquired through a group training technique.

AMA Annual Survey of University Research

AMA's fifth annual survey of university research in personnel management, labor relations, and labor economics is now in progress. The survey will report on current university research activities which are of practical interest to personnel and industrial relations executives. In addition to soliciting the cooperation of those who have contributed to earlier surveys, the editors are hoping to increase the number of participants in the current study. The findings will be published in Personnel in the fall.

Further details may be obtained from the Editor by those desiring to participate.

The Recruitment and Use of University Graduates by Industry

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While the low birth rate of the thirties, and the gradually increasing defense needs of the nation, are responsible in large part for the current shortage of college-trained personnel, some of the difficulties arising from this shortage can be laid at industry's own doorstep, the author asserts. In many cases, for example, the frantic search for engineering and technically trained personnel culminates in their placement in non-technical jobs. Moreover, industry tends to concentrate on the big-name colleges as sources of personnel, to the neglect of the less prominent schools. Similarly, unnecessary barriers have been placed in the way of non-college personnel rising from the ranks. He concludes with some positive recommendations for helping to alleviate some of the problems arising out of both the real and the "imagined" shortage.

THE NATIONAL MANPOWER COUNCIL was established in 1951 at Columbia University, under a grant from the Ford Foundation, to analyze the major manpower problems facing the United States, and to submit its manpower policy recommendations to the public, to voluntary groups, and to the governmental agencies directly concerned. Composed of representative citizens from every section of the country under the chairmanship of James D. Zellerbach of San Francisco, the Council has just completed a comprehensive evaluation of the nation's scientific and professional manpower problems.

Its report, *A Policy for Scientific and Professional Manpower*, was presented to President Eisenhower on May 18, 1953 and is being published by the Columbia University Press. This is the second major undertaking of the Council. Last year it issued a report on *Student Deferment and National Manpower Policy*. It is currently engaged on a third study, *A Policy for Technical and Skilled Manpower*. There is a logical relation among the three, since each deals with an important aspect of the *quality* of our human resources in this period of enduring emergency. As the Council has proceeded with its work, it has become increasingly conscious of the fact that only since World War II, and more particularly since the large-scale defense program after Korea, has any real concern been manifested about either the quantity or the quality of the manpower resources available to the United States to meet its national and international commitments. Professor S. Zuckerman, the Chairman of the Committee on Scientific Manpower in England, has stressed the same point, stating that "the deliberate assessment or attempted assessment, of national needs for scientific manpower is a relatively new departure."

The secretariat for the Council consists of a small group of manpower specialists at the Graduate School of Business, Col-

* Professor Ginzberg is Director of Research for the National Manpower Council.

umbia University, who have worked closely with academic, industrial, labor, and governmental experts throughout the United States in securing the information and evaluation that the Council requires for its policy deliberations. In connection with the Council's recent study of scientific and professional manpower, the research staff has reviewed a considerable body of materials bearing on the past trends, the present flow, and the future prospects of the college-trained population in the United States. It may be helpful to make the broad outlines of this analysis available, and to point up at least some of its implications for the recruitment and utilization of university graduates by industry.

Past Trends and Future Prospects

When dealing with manpower, the long-run determinants and trends are doubtless the most important. This is especially true in the case of persons who undergo a long period of formal training. At the end of the last century, only the exceptional person graduated from high school; today, in some parts of the country, we are approaching the point where it will be the exceptional person who does not graduate. There is still room for greatly increasing the number of high school graduates, particularly in the rural areas of the Southeast, where most whites and the great majority of Negroes still fail to complete high school. Over half of the young people in the whole United States now graduate, however, as compared with less than 4 per cent in 1890.

College Attendance Higher

During this same period, the numbers attending and graduating from college have also increased greatly. In 1910, only two and a half per cent of the young people graduated from college. Today, more than one out of every five persons who reach college age enters college. Although only about half of those who begin college graduate, the scale of college attendance in the United States is nevertheless remarkable when compared with England, where less than 4 per cent of the college-age persons are in college. Even after one corrects these figures to allow for differences in the educational structure—most elementary school teachers in England secure a certificate rather than a college degree—the difference is still tremendous.

While the proportions of the population graduating from high school and college have increased strikingly during the past half-century, the proportion of college graduates who go on to secure higher degrees has remained quite stable. At present about 13 per cent of the college graduates secure the next higher degree, compared with 11 per cent in 1910; 1.5 per cent secure the Ph.D. degree, compared with 1.3 per cent in 1910. Of course, while these percentages have been relatively stable, the absolute number of persons who acquire higher degrees, and their proportion of the population, have increased greatly, reflecting the much enlarged base of college graduates. Over 70,000 higher degrees were awarded in 1950-51, compared with less than 2,000 at the beginning of the century.

Qualitative Changes

It is not easy to summarize what has been happening to the college population in terms of the sexes, because of the erratic developments in male enrollment during the past decade. There is no doubt, however, that the number of college women has been steadily increasing. They now represent about 40 per cent of the persons starting college.

In light of the current preoccupation

with the declining number of scientists and engineers who will complete school within the next few years—for reasons which are most closely connected with the low birth rate of two decades ago, and the swollen output of scientists and engineers resulting from the G.I. Bill of Rights—it is important to note what has been happening to the choices of specialty in colleges and graduate schools. Although the available data are not conclusive, it would seem that there has been a slight increase in the percentage of male college students majoring in science and engineering from over one in three between 1920 and 1940 to more than two in five during the last 10 years. But the more striking shifts have been the increases in the social sciences, and especially in business administration, at the expense of almost all other fields except the sciences and engineering. There is little in theory, and less in these figures, that would lead a cautious person to conclude that one could secure a substantial further increase in the number of scientists and engineers in the next few years. Aptitude and interest may well set an upper limit on the number of students who will select science or engineering as a field of concentration.

Of the small percentage who go on to secure the Ph.D. degree, over half are science or engineering students. Until recently, however, only the exceptional engineer pursued his studies this far, and even today the number of engineers who secure the Ph.D. degree is relatively small. Only 500 Ph.D.'s in engineering were granted in 1950-51.

The result of these trends in American education is reflected in the expansion of the professional group as a percentage of the total labor force. In 1870, only three out of every 100 were professionals, usually doctors, lawyers, clergymen, or teachers. Today eight out of every 100 are professionals, and there is every reason to anticipate that by the 1960 Census, the ratio will be still higher.

Needs of National Defense

It is not possible to assess the full implications of these long-run trends without considering the new elements introduced into the situation by the national defense program. The most important is the Universal Military Training and Service Act, which insures that the vast majority of young men will serve in the Armed Forces for at least two years. Volunteers for the Air Force and the Navy are required by current departmental regulations to enlist for at least four years. In recent months, General Hershey has called attention repeatedly to the increasing stringency in the manpower pool, and has pointed out that the country faces three alternatives: drafting fathers; rescreening the 4-F's; or substantially reducing the number of deferments for students. In its study of *Student Deferment and National Manpower Policy*, the National Manpower Council recommended that the President remove "dependency as a ground for deferment in order to insure that postponement of service does not turn into exemption." There is considerable logic in permitting individuals to complete their education before they are called for military service; but there is little logic in the current procedures which permit a student to acquire a wife and children along the way and thus to secure a continuing deferment.

There is, of course, still another way of balancing military demands and the manpower supply. Although current planning is still based on maintaining a force of about 3.7 million men in the Armed Services, this figure is not untouchable. Clearly, if international conditions worsen—which, in terms of the immediate future, at least, does not ap-

pear imminent—it will have to be raised. On the other hand, if conditions remain as they are or improve, there may be a real opportunity for reducing it.

The Reserve Programs

Most of those who will not enter the Armed Services as enlistees or inductees will do so as members of the ROTC. At present, about 300,000 young men are enrolled in the senior reserve officer training programs. Since the Armed Services have a financial and a training investment in these men, and have planned to meet their expanding officer requirements from this source, it is reasonably certain that they will serve.

The number of young adults in the population is now, and will continue for several years to be, lower than it was during the last decade, because of the depressed birth rates of the 1930's. While there were more than 12 million persons between 15 and 19 in 1940, there were only a little more than 10 million in 1950. The numbers who become available for employment will be further reduced for several years because of service in the Armed Forces. Within two or three years, however, the numbers completing their tour of duty will compensate for those entering service, and before the end of the decade, the number of young adults will begin to reflect the sharp birth-rate increase of the early 1940's.

Although Congress passed a new reserve act early last summer, the implementing legislation and regulations are still to come. It is therefore difficult to guess the impact of the new provisions, which establish a Ready Reserve with a ceiling of 1.5 million and a total of 5 years of obligatory service on active or reserve duty for each member. It appears that the most which the Army will require of its reservists will be two weeks at summer camp. Weekly drills will not be compulsory. It is unlikely that the reserve problem will complicate the manpower picture, unless large-scale mobilization requires the Federal Government to strike a balance between the priority needs of the Armed Services and of industry for various types of young specialists.

Government Is Strong Competitor

The withdrawal of large numbers of young men for military service is paralleled by the Federal Government's competition for civilian manpower, particularly young scientists and engineers. It is not generally known that the Federal Government employs approximately one-sixth of all the scientists and engineers in the country. The tremendous research and development program performed under Federal contract by private companies further increases the pressure of the defense program on the nation's manpower resources. It should be noted in passing that the Federal Government is in a relatively good competitive position to bid for young scientists because of its starting salaries and in some cases, such as the Atomic Energy Commission, because of the excellence of its facilities.

In contrast with this advantage, the government has great difficulty when it seeks to secure top managerial personnel. Here the competitive advantages are all with private industry. It is doubtful that the Federal Government can ever build up an adequate corps of top administrators without the assistance of industry and the universities, which could ease the situation greatly by granting leaves of absence for national service.

Majority Are Not College-Trained

What implications for the recruitment and utilization of college-trained person-

nel by industry flow from these long-term educational trends and from the special military requirements of the current emergency? Although the numbers who attend college in the United States are very large, it is important to remember that more than three out of every four young people do not go to college, and almost nine out of ten young people do not graduate from college. Although a greater percentage of individuals with high intelligence attend and graduate, even among the most intelligent 15 per cent, less than half enter college and only about one out of three graduate from college. It is difficult to exaggerate the importance of this last point when one recognizes the extent to which current hiring practices emphasize college education. Industry cannot afford to ignore the majority of individuals of high potential who do not have college training.

Over-Emphasis on "Specialists"?

Although industry unquestionably has a real need for large numbers of scientists and engineers in its research and development programs, and for the staffing of other types of work in which a specialized background is necessary, the frantic search for more and more scientists and engineers may be a serious error. After all, many of these men are being recruited not for specialized but for general managerial positions. It may be true in statistical terms that the people who pursue a scientific or engineering program in college are slightly above the average, and further, that the type of training they receive is slightly more rigorous than the average. On the other hand, more than half of all the men who go to college do not specialize in science or engineering—clear evidence that all the best people cannot be in these two fields.

Another Form of Discrimination

Until the so-called current "shortages" arose, a third kind of educational discrimination was practiced by many large national organizations whose recruitment programs were concentrated on the big-name colleges and universities. Possibly these institutions do attract a slightly better than average student, and in turn provide him with a slightly better than average type of training. But native intelligence is distributed more or less randomly throughout the population, and there can be no question that the less well-known institutions, which provide the great majority of college graduates, also provide most of the better people. Nor is it sensible for industry to consider only the reputation of the college and the general college performance of the man. Good marks and campus leadership are desirable qualities, but character and work motivation are at least as important.

There are good reasons to suspect the criteria of selection used by many recruiters. Frequently they have an idealized image of their own company and are seeking men who will prove a perfect fit. An increasing number of companies are apparently concerned not only with how the man will fit into his work but how his wife will fit into her appropriate circle. This is a drive for conformity that has gone mad.

Needed: Broader Employment Policies

Too much emphasis has been placed upon selection, and too little upon utilization after selection. The young college graduate has generally just passed through the turbulence of adolescence. It is very difficult, therefore, to read too much from his record. Real evidence about his true potential and his ability to make use of it can be determined only

on the basis of an enlightened employment policy which aims at giving him his chance and assessing him in the process. And industry is just beginning to learn that even if he acquired a Ph.D. before entering employment, and particularly if he has only his Bachelor's degree behind him, he will still need additional extramural education and training. He will need a special course at a university; he will profit from a spell in Washington.

In summary, college-trained personnel will be in relatively short supply—assuming present or higher levels of national income—throughout the rest of this decade. The major cause for the shortage lies 20 years in the past, in the low birth rates of the thirties. The security needs of the nation compound the difficulty. Faced with this predicament, there is much that industry can do to insure that it gets good young men and makes the most of their abilities. It should broaden its recruitment base among the colleges. It should, in particular, reconsider the barriers which it has placed in the way of non-college personnel rising from the ranks. It should not insist on engineering and scientific graduates for non-technical jobs. Finally, it must not be overconcerned with initial selection but must be much more sensitive to the need for a long-range and continuing program of manpower development and utilization.

Union Contracts Since Korea—A Survey

OF 602 POST-KOREA union contracts covering three million workers, 207—nearly one-third of the total—provide for a union shop, a recent Conference Board study shows.

Five hundred and twenty-six of the contracts were with manufacturing firms, and seventy-six with non-manufacturing firms. They comprised 277 AFL, 219 CIO, and 106 independent union contracts.

After the union shop, the next most frequent provision found in the contracts was maintenance of membership (the union security formula of World War II), which occurred in 121 contracts. A noticeable trend observed in the contracts was the rise of the modified union shop, which appeared in approximately one out of nine of the contracts reviewed. The banned closed shop, which covered one-third of all unionized workers before the Taft-Hartley Act, appeared in none of the contracts. One-third (196) of the 602 contracts contained no union security clauses.

AMA GENERAL MANAGEMENT CONFERENCE

The General Management Conference of the American Management Association, which will feature a number of papers of special interest to personnel and labor relations executives, will be held on June 17-19, 1953, at the Hotel Statler, New York.

The Psychopathic Personality In Industry

A Personnel Management Problem

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It has been reliably estimated that individual personality difficulties represent the greatest single cause of failure on the job. But how, without resorting to psychiatric depth techniques, can management sift out those whose personalities virtually preclude the possibility of satisfactory employment experience? This article is concerned with one personality type that management often does not recognize as a "problem" until it is too late, simply because superficial characteristics seem to suggest that the individual would make a desirable employee. Of special value are the author's suggested "rules of thumb" for recognizing the psychopathic personality without the aid of psychiatric tests.

AN ANALYSIS of labor turnover very often reveals a particular type of individual who presents a formidable challenge to the personnel director. This individual's association with the firm is invariably short-termed and an inquiry into his past occupational history usually reveals a lengthy string of fickle affiliations with other firms.

The employment interview and the initial impression reveal a neat, very polite, assertive, cooperative individual who appears bright and efficient. He radiates a feeling of confidence and capability which is easily interpreted by the interviewer as indicative of desirable potential. Once employed, and within the immediate subsequent weeks, careful observation of this employee reveals an extremely interesting personality structure in function.

He displays a superficial ingratiation, circulates freely, and quickly becomes acquainted with the other employees. To the latter and his superiors, he maintains an over-polite attitude and frequently displays a deferent manner of relating to people. His work attitude is initially characterized by zealous concern and interest. He throws up a smoke screen of laudable ambitions, enthusiasm and energy. If observed carefully, however, this display dwindles to inconsistency and finally to a bland, pervasive indifference. He makes recourse to fabulized dissatisfaction with working conditions, associate employees and management regulations. His demands of management and of his fellow employees increase enormously. It is not at all unusual to find him taking advantage of the trusting, gullible employee impressed by his braggadocio. In return, however, he is willing to give very little in either time, effort, efficiency or interest. But before his behavior and attitude become too blatant, he invariably

turns up with a request for termination and a conviction that he can find a new, sustaining interest in some other occupational adventure. He is predisposed, of course, to follow the identical cycle elsewhere.

What Psychological Tests Tell Us

The term, Psychopathic Personality, has been applied to this type of character disorder and by definition describes a personality structure which, while not psychotic or neurotic, presents inadequacies and deviations to the extent of rendering the individual incapable of satisfactory social and business relations.

Psychometric examinations applied to the selection and evaluation of personnel have been very useful in detecting the psychopath. Experience has consistently shown certain typical and characterizing test responses. Intelligence testing usually reflects a high-average or superior range of endowment. Over-all results on these particular tests present a pattern which displays a greater proficiency with items requiring manipulative ability than with those items requiring abstract thought formation. The thinking revealed is very often of syncretistic quality. His judgment often tests at an impaired level, but he manifests a particularly keen, overalert attitude toward situations. His tendency is to remain at a fairly concrete level of ideational formation, but when hard-pressed and forced to respond abstractly, he resorts to fabulation in free fashion. He fully understands the nature of social and business situations, but contrives a pathological twist in exploiting them for his own purposes.

Typical Personality Configuration

Regarding the personality tests, particulary the Rorschach projective technique, which is analagous to an X-ray view of the underlying personality structure of an individual, this person is pictured as one within whom psychological conflict culminates in overt defiance in the form of anti-social expression. His ego is at constant battle with society—it is quite possible that in many cases an underlying sense of inadequacy and insecurity has contributed heavily to his maladaptive behavior. This technique further reveals that this sort of individual is constantly attempting to give the impression that his intellectual capacity is more than adequate and that he is unhampered by any social or emotional problem. However, he is more than often revealed as an unreliable person whose modes of behavior are difficult to explain by ordinary motives or incentives. He seems unable to plan constructively, and when attempts are made to do so he is incapable of following through. Social conscience is deplorably absent—his relations with other people are held to casual likes and dislikes. Deep attachments for people are seldom evidenced, and neither is he able to profit from experience.

The detection of this personality type is challenging indeed. He plays havoc with managerial attempts to keep down employee turnover costs as well as with the more intangible measure of lessened departmental production resulting from the effects of disorganization incurred by change on other employees.

Signs to Watch For

As a rough rule of thumb to guide the interviewer, we would suggest that an inquiry be made into what appears to be a lengthy, suspicious occupational history where each position has been held on a relatively short term. Further, the examiner should attempt some appraisal of the applicant's personality in regard to his affective life. That is, are his feelings

felt or feigned? Is he capable of sustained interest? Has he the capacity to delay impulsiveness? Does his manner impress you as being over-polite and superficially ingratiating? Is he able to empathize with others? These are some of the components to be on the alert for, but it must be remembered that no one of these qualities, evidenced by itself, is sufficient basis for discrimination. For finer, accurate appraisal of personality configurations, the application of psychological tests is suggested.

To all those directly responsible for the selection and evaluation of personnel in industry, the recognition of this particular type of applicant will enhance the goal of management for optimum personnel efficiency.

Personnel Practices in Industrial Laboratories

Lowell W. Steele

Because of the creative and highly individualized nature of industrial research work, it has been asserted that formal personnel policies cannot realistically be applied to research technicians. The author takes exception to this view, emphasizing that industry's tremendous investment in the research worker necessitates carefully formulated personnel policies to make optimum use of his services. Based upon a pilot survey, this article reports on industry's progress—and some of its problems—in developing formal personnel policies for the selection, induction, training, rating, and promotion of industrial research personnel.

SCIENTIFIC RESEARCH directors and business executives are agreed that not only research activities but scientists themselves are "different"—yet little effort has been made to investigate the exact nature of these differencs or even to determine that they really exist. The current scale of research in industry as well as the strategic importance placed on research activities suggest that business men, and particularly personnel managers, give careful consideration to the requirements for creative research. The very existence of the belief in the "differentness" of research will provide the personnel manager with greater freedom in designing procedures to fit the needs of research management. At the same time, the existence of this belief creates strong resistance to the imposition of standard procedures.

The most obvious difference between research and other types of business activity is that the function of research is to produce new knowledge rather than to use present knowledge in the process of

NOTE: The data on which this article is based were gathered as part of the research for a doctoral dissertation in the Department of Economics and Social Science at M. I. T.

production. Research emphasizes creative initiative on the part of the individual. This emphasis can be expected to influence the selection of research personnel, the organization of the research division, and the administration of research activities.

This article is a report of an investigation of the types of personnel administration procedures which were being used as well as the problems which were being encountered in industrial laboratories. The investigation covered the areas of selection, induction, merit rating, promotion and training. The survey was a pilot study covering a dozen firms in a wide range of industries and including both large and small companies. The data were gathered by interviewing research directors. Because of the small size of the sample, the conclusions presented below cannot be considered as descriptive of industrial laboratories in general. No attempt has been made to present quantitative data because the study was designed to examine attitudes and feelings. Although the details of the personnel administration practices being followed varied greatly, certain uniformities in attitudes appeared toward personnel administration, its achievements and inadequacies.

Selection

Typically, the research man entering industry can expect great security in his job. Because of the desirability of providing stable employment, laboratories consciously strive to avoid employing a given person only for a specific job. Any addition to staff is expected to represent a permanent increase. Turnover among research personnel in the firms contacted is extremely low. This is partly explained by the fact that industry is suspicious of "floaters"—such people are regarded as parasites who work for a firm only to acquire information which can be sold to a higher bidder—and partly by the fact that research management is very conscious of the effect of turnover. As one personnel manager for a research unit stated: "We don't hire 'hands.'" The resignation of research personnel leaves an obvious gap in the organization which makes itself immediately felt.

For most laboratories, the appearance of a new scientist or engineer is a significant event and is undertaken only with great care. In general, unless the laboratory is growing rapidly and needs experienced men immediately, most firms prefer to obtain men directly from college and train them themselves—if training is needed. Because of the highly technical training which applicants have received, the research division typically does its own recruiting.

The long period of education required for scientific training provides a ready-made source of data in selecting new employees. Industrial laboratories depend heavily on personal contacts with college professors and placement officers in recruiting and selecting new employees. Where a satisfactory relationship has been built up with a professor, his recommendation can go far in determining the technical competence of the applicant. In the present tight labor market for scientifically trained people, such college contacts are considered indispensable in acquiring new personnel.

Interviewing is the other principal tool in selection. Since the laboratory generally has specific jobs in mind when selecting personnel, the people in the group with which the prospective employee will be working have the dominant voice in selection. However, others in the laboratory and occasionally people from other parts of the organization will also interview the prospective employee. Obviously, the technical competence of the applicant is of primary concern, al-

though personality traits are being given increasing consideration. While industry does not ignore the brilliant but erratic genius, in general it prefers its men to have "normal" personalities. As one research executive explained: "These fellows will be having contact with other people in the organization and it helps if they make a good impression. They participate in the task of 'selling' research."

Induction

Since research people are added in a systematic fashion and generally in small numbers, the indoctrination of the individual is handled by the immediate group with which he works. Because most of the people hired are highly trained, usually they can be immediately assigned to a job and can receive their orientation from those in their group. No formal system of induction was encountered in any group.

In the immediate work group this type of induction is undoubtedly effective, but it does little to help the scientist identify himself with the objectives of the company as a whole. Unless the firm wants to subsidize idle curiosity on the part of its scientists, it must aid them in becoming "company conscious" by helping them to know about the company, its problems and its objectives. Since the relation between the activities of the research department and those of the rest of the company is tenuous at best, the scientist may have only the vaguest conception of the relationship between his work and the objectives of the firm. A sound induction program is the ideal place to lay the groundwork for identification with the company.

The suggestion that scientists be made "company conscious" will be criticized by many as being unrealistic. They argue that scientists are not interested in anything but science and that they will resent any effort to "commercialize" them by attempting to help them identify themselves with the welfare of the company. The results of this study suggest that this criticism is unsound. The scientists interviewed were quite aware of the fact that the company was supporting them and they were attempting to earn their pay. They recognized that their future welfare was tied to the fortunes of the company. One research director stated specifically that he was constantly amazed at the speed with which his scientists became interested in the welfare of the company.

A sound induction program for research personnel must extend over a considerable time period. Indeed, one could say that it should function continuously for all laboratory personnel. The relation between the activities of the research division and the rest of the company is complex, and consequently it is not easily demonstrated nor grasped. Moreover, it is in a constant state of flux. A series of conferences between laboratory personnel and people in other parts of the company is one means of helping both groups to understand the objectives and problems of the other.

Such a continuing induction program is doubly important because of the antagonisms which the scientist in industry faces. Too often he is charged with being impractical and with making no contribution to the solution of the problems which operating personnel face. Consequently, it is important for him to have knowledge of the over-all objectives of the company, and how research fits in with those objectives, in order to defend himself against criticism as well as to sell the value of his work to others.

Merit Rating

The attitudes of research management toward merit rating vary considerably.

Although some form of rating system is almost universally used, there is a lack of uniformity in the type of rating as well as wide variation in the uses to which it is put. Certain companies use a formal list of attributes in rating an individual's performance. In some cases this list is the same as that used by the rest of the organization, while in others the research group resists using the "standard" form. In still other firms, no formal approach to merit rating is used, but an attempt is made to evaluate each individual in terms of his job. In all cases, however, there is insistence that any approach which is used must be adapted to fit the needs of research.

Since it is difficult to determine accurately in advance how complex a project will be, the rater must be intimately familiar with the project, and the problems which are appearing, before he can evaluate individual performance. This procedure is possible only if the supervisor has a relatively small group under him. In spite of the difficulty of establishing objective criteria of the complexity of the job, there is a strong conviction that the supervisor can make an adequate appraisal of the complexity of a task if he is close enough to it.

Determination of the factors which should be considered in rating an individual is subject to wide variation. There is general agreement that no satisfactory list has yet been established. The statement of a research division manager is typical: "I don't believe there is a set list of questions to be answered which can adequately serve as the basis for rating a man in research." Even where explicit attributes have been selected, they seem to be used only as a guide and hence are subject to considerable interpretation by the individual rater.

The nature of the output of research, as well as the process of research, complicates the task of merit rating. Industrial merit rating systems typically are tied closely either to individual output or to factors which directly influence individual performance. The systems assume that individual performance can be measured satisfactorily and that individual output can be expected to appear in a systematic manner. Neither assumption is correct when applied to research. It is not at all unusual for brilliant research to produce only negative results, i.e., to demonstrate only that a given hypothesis is incorrect or that a given technique will not work. Similarly, months or even years of very meager output may precede research results of tremendous importance. As a result of these circumstances, checking research productivity is a very erratic guide to the performance of the individual unless it is applied over a long interval of time.

A further barrier to the appraisal of the performance of the individual is the difficulty of determining what constitutes work and what constitutes idling. Research is a creative learning process in which stereotypes of efficiency and productivity do not apply. The researcher must have time to reflect, to review his progress to date, to check his method of approach, and even to relax and get away from his problem for a time. There is no necessary correlation between physical activity and productivity in research.

The wide variations in merit rating which were indicated above show that this problem has not been satisfactorily solved. Since the output of research cannot provide a satisfactory guide to the performance of the scientists, it would seem that observation of the process of research itself contains the key to individual appraisal. What is good research technique? How does the good scientist operate? What is entailed in doing research? If questions such as these can be answered, more adequate

criteria for evaluating the performance of the individual can be found.

The most common use of merit rating in research is as a basis for pay increases. (In fact, in many cases there is a tendency to make this the principal or even the only use.) In some cases the rating is used by supervisors as the basis for counseling work to aid people in improving their performance. Some of the executives interviewed indicated that they intended to make increasing use of this aspect of merit rating. These executives feel that merit rating can be an effective tool in training research scientists in administration. One personnel manager said: "We installed a merit rating system recently and my primary purpose was to force the supervisors to talk to their men. I don't care particularly what they say in the rating, but it forces them to think about their men and to talk to them about their work." That scientists and engineers often dislike this type of administrative work is indicated by this statement by a chief engineer: "I don't like to rub a man's nose in his merit rating. Sometimes I have to talk to a man, but I don't like it. He knows whether he's done a good job or not and I don't have to tell him."

Promotion

A significant recent development in research management is a movement to bring increased flexibility to the promotion procedure in the organization. The traditional method of advancement in an organization has been to ascend the administrative hierarchy. However, research management is beginning to realize that this procedure is too inflexible. In the first place, contribution to the objectives of research is not necessarily directly related to position in the administrative structure. That is, it is sometimes debatable whether a particular researcher can make a greater contribution to the organization as a supervisor or as a research worker. Because a combination of creative ability and technical competence is not common, a "promotion" which immobilizes this talent by shifting the attention of the individual to administrative matters is of questionable value to the organization. A promotion scheme which provides only one way "up" ignores this fact and tends instead to emphasize the importance and value of the administrator. As a result, the scientist who wishes to advance in the organization is placed under pressure to assume administrative duties regardless of his abilities and interests in such work.

Secondly, providing only one path of promotion in research makes for inflexibility in the organization of the actual work of research. Placing a premium on the assuming of administrative duties emphasizes the importance of having "men under you," and tends to create a status system in which individuals are evaluated in terms of the number of people they supervise. Again, this system ignores the realities of research by penalizing the individual who contributes greatly while working alone or with very few under him. Moreover, it makes for difficulty in altering work teams to fit new situations. The dynamic nature of research means that no set organizational structure is permanently effective, i.e., as the nature of the work changes the pattern of organization which will be most effective also changes. Emphasis on this one type of promotion makes it difficult to change the organization should the need arise. "We have to be flexible in research," said one research director. "Our organization must change as conditions change. We strongly emphasize that contribution to the progress of research is the important thing in evaluating a man, regardless of the duties he performs. Being a supervisor does not

mean that you are any better or are contributing any more."

As a result of this situation, some research managements have created two paths of advancement. One path is the traditional one, via the administrative hierarchy, which enables those people who have capacity for administrative work to advance along those lines. Individuals are picked primarily because of their administrative ability, although technical competence cannot be overlooked. The second road "up" provides advancement for scientists *as* scientists without the assumption of administrative duties. The most progressive approach to this problem is to make this new path of advancement comparable to the traditional one, as illustrated by this excerpt from an interview: "We try to keep an open salary top on our highest scientific classification. There is no reason why a research associate cannot make as much as a division head."

The establishment of this new path of promotion is not without its difficulties. Perhaps the most important problem is to make the new job classification really meaningful. There is the temptation to use this new promotion path as a sop to those who have been employed for some time without exhibiting extraordinary capacity either for administrative duties or for creative research. If the senior scientist category is used for such people it is worthless as a meaningful promotion for highly creative researchers who want to stay in research.

A further difficulty lies in establishing a satisfactory balance between the two avenues of advancement. If the senior scientist category is not made sufficiently restricted, most scientists may aspire to that path of promotion because they are required simply to practice their profession. If this situation arises there will be insufficient incentive to enter the unfamiliar world of research management. The requirements for promotion must be set at a sufficiently high level that promotion constitutes recognition only for the top-notch scientists if this pitfall is to be avoided.

Certainly the creation of an alternate promotion path violates the traditional feeling in industry that the supervisor is "worth more." The fact that research departments have adopted or are adopting this procedure, then, is a strong indication of the latitude they are being being given by top management. Very few of the executives interviewed expressed any concern over undue interference from other management personnel. Some executives attribute this greater freedom to the widespread belief in the "differentness" of research and scientists which was mentioned earlier.

Training and Development

The training necessary for research personnel is of two types. One involves a combination of theoretical knowledge and knowledge of research techniques in a field of scientific specialization. The second type of training involves learning to do research, in other words, learning to learn.

Because personnel employed in research have already undergone extensive training of the first type in acquiring their scientific education, any training program adopted by the research division is designed to increase their skills. Some firms encourage their research personnel to take additional courses and work for higher degrees. This encouragement takes the form of giving time off to take courses, paying (or helping to pay) for costs of education, giving leaves of absence for study, and finally, considering an individual's participation in such activities as a part of his merit rating. Further training of this type is provided by encouraging scientists and engineers

to become active in professional associations. By attending professional meetings and mingling with fellow scientists, laboratory personnel are enabled to keep abreast of developments in their professional field.

The second type of training is simplified by the fact that research is a learning process and consequently the mere engaging in research results in a continuous training program for laboratory personnel. At the same time, however, the fact that research itself constitutes a continuous training program gives rise to one of the most insidious dangers in research—the tendency to go stale. One research executive phrased the problem in this manner: "As time goes on, our scientists become more and more like engineers. They are too unwilling to try 'harebrained' ideas; they are too concerned with trying only what they are pretty certain will work." No formula for solving this problem is known, but the able research director can perform his most important function in providing a continuously stimulating environment for research.

Although all the types of training indicated above are designed to increase the professional competence of the researcher, they do little to equip him for advancement within the administrative hierarchy of the research division. The training and experience of the scientist equip him to deal with *things*, but provide little help in working with *people*. Moreover, the scientist learns to attack his problem in a methodical, systematic manner. The necessity for moving rapidly from one problem to another and for making hurried decisions is distasteful to him and may be a major source of trouble when he assumes administrative duties.

Regardless of the fact that research experience is insufficient training for a supervisory position, industrial laboratories are not undertaking formal training for administrators. In too many cases, the neophyte is placed in the job on a "sink or swim" basis. Undoubtedly one reason for this fact is that research groups are sufficiently small that the requirements for supervisors do not warrant a formal training program. A further reason for avoiding training programs for supervisors is that they tend to emphasize the importance of supervision as a road to advancement. However, the present shortage of research administrators as well as the continued growth of industrial laboratories suggest that the training of scientists in administration is one of the important problems facing industrial research.

Conclusion

Some writers have suggested that personnel management procedures cannot be applied to research people.* They feel that scientists must be left alone to perform their work as they wish, with a minimum of interference and control. Even casual examination of the research function makes one question the validity of this assertion. The statement that management *is* personnel management is nowhere better exemplified than in research; the finest equipment, the soundest planning, and the most generous budget will not compensate for inadequate personnel or a stultifying environment. It may be true that current procedures used by personnel managers cannot be applied to research or at least will require modification, but to assert that personnel management has no place in research seems unsound.

No firm covered in this investigation ignored personnel administration procedures in the research division. In some cases, the personnel department was being expanded and given increased re-

* Drucker, Peter F., "Management and the Professional Employee," *Harvard Business Review*, Vol. XXX No. 3, pp. 84-90.

sponsibility. Where the size of the firm warranted it, a personnel department was established as an integral part of the research unit. Because of the widespread feeling that research is "different," this step is almost mandatory in order for the personnel office to function effectively. Laboratory people feel that procedures must be modified to suit the needs of research and they strongly resist pressures to conform to standard.

The challenge of research is one of the greatest faced by personnel administration. The importance of the research function to the success of the company can be expected to increase. The success of the research effort is based principally on the effectiveness with which laboratory personnel are utilized and this is an area in which the personnel administrator can make an important contribution.

The attitudes of many research executives suggest that at present personnel administrators have not successfully fulfilled their function. Executives believe they must solve their problems unaided because nobody understands their needs. These men tend to ignore the services and skills of the personnel office and, in fact, often point out that the personnel department has no part in the development or administration of a given procedure. As the importance of research grows, personnel administrators must concern themselves with the problems associated with research activities.

The New Time Study Program

How to Put It Over

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Like many another managerial tool, time study can be dangerous if it is not intelligently and cautiously handled. Its practical hazards to employee and even foreman morale are, as many companies have discovered, greatest at the start, when job standards have not been developed and workers tend to react with instinctive suspicion to the time study man's activities. The author of this article explores various critical aspects of the morale problem and evaluates possible means for minimizing its seriousness.

FOR THE MOST PART, the relationship between personnel directors and time study engineers in plants where jobs have long been standardized appears to fall into a pattern: discussion of standards for new jobs and revision of standards for changed jobs. As new standards must, in a unionized shop, invariably be approved by labor, the labor relations department is always drawn into the picture.

However, in the event that the shop has not previously been standardized and a motion study engineer has just been retained to initiate job studies, the functions of the personnel department be-

come much more important. Experience indicates that great tact and careful preparation by the industrial relations manager are imperative to avoid labor trouble.

Hazards of the New Program

Nothing can be more annoying to a workman than to have an observer stand at his elbow for hours, watching and recording every move. Unprepared by previous explanation, employees may suspect an impending "speed-up," or even fear that some jobs will be eliminated. Nor can any foreman be expected to take kindly to the sudden, unexplained appearance of the motion analyst; indeed, he is more than likely to consider the procedure a form of "checking up." The result in each case is serious lowering of morale, suspicion of management motives, and consequent unrest. And without cooperation of supervisors and employees the time study itself is unlikely to be successful.

In the light of general experience, an eminent time study engineer, Ralph M. Barnes, gives these instructions to students of stop-watch time study:

1. Discuss the operation to be timed with the foreman of the department.
2. Make certain that the operator has been informed that a time study is to be made.
3. Secure the cooperation of the operator; explain to him what you are going to do.

Another authority, Marvin E. Mundel, stresses "disseminating motion and time study information throughout the whole organization, not only to overcome the normal resistance of people affected by it, but also to aid everyone in the organization to cooperate in finding better ways of doing work." He adds: "Formal training courses, foreman conferences, information via the house organ, and person-to-person explanation of each issue are desirable."

As a matter of fact, it is not uncommon to find, even in plants accustomed to time study, a clause in the union contract reading like this actual example: "The Union shall be informed of any proposed time studies as far in advance as possible."

Stating the Case for Time Study

Of course, to explain properly the reasons for the new time and motion study program, the personnel director should himself be familiar with them. Four main reasons may be given:

1. Such studies form the basis for establishing piece-work rates, or standards for jobs paid on a day-work basis.
2. The studies generally improve methods by making possible "work simplification," the development of better layouts and material handling techniques, etc.
3. The studies provide superior bases for production planning and control.
4. Accurate records of standard times facilitate cost control.

The industrial relations manager will recognize the implications for him in this program: job descriptions and specifications will invariably be changed. Some tasks will be combined, others broken down; new tasks may be created, others eliminated. The entire procedure may be expected to result in complaints and grievances. In any event, if there is a union, the new standards will have to be approved. The whole procedure is obviously a major matter for the labor relations man.

By the same token, the personnel man will recognize here the basis for a sound job evaluation program. Indeed, it may

be suggested that a sound job evaluation plan, such as the widely-used National Metal Trades Association 11-factor plan, be considered at the outset, so that the job analyses may contain the necessary basic information.

Indoctrination Methods

The problem of properly introducing the time study program is, as has been said, one which requires careful preparation, since every employee will have to be familiarized with the methods and objectives of the study. Some firms have issued booklets for this purpose. In the very beginning, certainly, the foremen must be carefully familiarized with the program; in this connection, supervisors' handbooks are valuable. For best results, a number of meetings will be required at which demonstrations are given of time study and its effects. Some concerns have asked the shop stewards to sit in with the supervisors at such times; others have instructed union representatives at separate sessions. Under any circumstances, the suspicions of all leaders must be allayed, their questions answered, cooperation secured.

It appears that information sessions of at least 30 minutes' duration should be held, on company time, for groups of bench employees; this educational procedure is generally a personnel or industrial relations function. Furthermore, the engineer should be introduced to the workers, at least initially, by the foreman, possibly accompanied by the shop steward.

Inexperienced time study engineers sometimes need a little instruction in the unwritten code of ethics of the shop floor. It is essential that they keep in mind such principles as the following:

1. Never alter an operation yourself; the supervisor is the person to do this.
2. Do not engage in unnecessary conversation: be courteous, but do not initiate talk.
3. Do not time a job without knowledge of the foreman.
4. Never observe a job without the knowledge of the operator.

Crucial Areas of Decision

It is important, too, to avoid answering questions as to levelling factors or allowances, which will have to be considered later. This is perhaps the most critical element in the entire procedure. As the engineer initiates his study, he will take stopwatch readings of the times required for each cycle of operations—a rather mechanical, routine procedure that seldom results in controversy. However, once the average or "selected" time for a certain task has been recorded, a definite problem arises: How shall the timed employee be rated or "levelled" as to pace? In other words, did he work at average, above-average, or below-average speed?

It will be recognized that when only one or two workers are employed at a certain task, no objective measures of effort may exist; in such instances, strong reaction by union representatives may be anticipated. It has been found wise for time study men, especially if they are new and inexperienced, to talk with the foreman about workers' pace before determining "normal time" (the selected time as affected by the rating or "levelling" factor), which is the time the average worker would take for the observed task.

After the "normal time" has been established, another major problem of judgment appears, which, again, is very likely to arouse controversy: this is the matter of "allowances." The analyst knows that the worker will become fatigued as the day wears on, that he will

have to take some time for personal purposes, that certain contingencies will inevitably arise—tool changes, obtaining materials, breakages, and the like. The question is: How much time shall be allowed for such purposes?

This matter is important enough to be mentioned in union contracts. One contract reads, in part:

> Allowances shall be applied to the standard as follows: Personal Time shall be 5% and will be applied to the entire day.
>
> Fatigue shall range from a minimum of 7% to a maximum of 30%. The exact location of each job in this range shall be determined by the factors in Job Evaluation which affect (a) the working conditions, (b) physical effort, and (c) mental and visual effort.

After the allowances have been added to the normal time, the "standard time" is obtained; it is the latter upon which wages are based.

Achieving Optimum Results

It is to be hoped that a cooperative attitude can be obtained by careful preliminary discussion, especially if the shop is unionized; otherwise, endless altercation may arise over the observer's judgments regarding factors and allowances. However, if these matters are properly handled, with good faith on both sides, the union may agree, as in one case, that

> . . . a high level of wages can be maintained only by maintaining a high level of productivity. The Union and its members will co-operate in attaining and maintaining as high a level of productivity as is consistent with the health of the employees and will also assist in effectuating economies and the utilization of improved methods and machinery. The employees shall follow the methods and motion patterns, use equipment required, maintain machine speeds, and use the layout as set forth in the operation analysis.

To sum up: If the industrial relations director is conscious of the fact that time and motion study is not entirely an exact science but involves considerable elements of personal judgment, if he realizes that it is, at best, not a pleasant procedure for rank-and-file employees, and if he knows that tact, instruction, patience, and above all an atmosphere of trust, are essential, then the program will go forward to the mutual advantage of employer, management, and employee.

Income of Women vs. Men

ALL WOMEN who had income in 1951 received an average of $1,045 in the year, according to a report recently released by the U. S. Department of Commerce, Bureau of the Census. This was 35 per cent of the men's average, which was $2,952.

Forty-nine per cent of the women and 18 per cent of the men had less than $1,000 income. At the other end of the scale, 37 per cent of the men, but only 5 per cent of the women, had income as high as $3,500 or more. The income referred to came from all sources—earnings, rent, own business, pension, etc. Of all the women in the population, only 44 per cent had any income, while 90 per cent of men had some income.

Women's average income has increased 10 per cent over 1950 and 15 per cent from 1944. Men's average has increased considerably more—15 per cent over 1950 and 44 per cent over 1944. As a percentage of the men's average, women's average income has actually declined. It was 35 per cent in 1951, 37 per cent in 1950, and 44 per cent in 1944.

Make Your Executive Merit Rating Realistic!

EDWARD C. SCHLEH*

A common criticism of many types of merit-rating plans is that they tend to evaluate the employee's potential rather than his progress and attach undue importance to nebulous factors and personal traits which are only indirectly related to the end-results of the job. It is the author's conviction that merit rating can be made more effective—at all levels of the organization—if it is concentrated on the individual's demonstrated ability to attain specific job goals. Accordingly, he presents here a simplified plan for keying the performance rating directly to operating results on the job.

WE SHALL OUTLINE here a new approach to merit rating which has been applied successfully to executive, supervisory, and key staff jobs in a number of companies. In actual practice it has been found that the same general approach can be applied as effectively to such other jobs in the office as clerks, lower staff jobs, etc. It's an attempt to overcome some of the common deficiencies of merit-rating plans. Specifically, these deficiencies are as follows:

1. Often a merit plan does not appear really to rate the results expected from the job. At least, it doesn't seem that way to the person who is covered by the merit rating. He often feels it rates innate traits instead of rating his effectiveness in carrying out his responsibilities.

2. Often the organization description of responsibility is not considered in applying the merit rating to the particular position.

3. Merit-rating plans frequently lose the over-all perspective of the important results from the position, and pinpoint small, unimportant factors, to the detriment of over-all job performance. Specific items of performance, or results expected from the position, are not properly considered and weighed in the merit rating. The importance of each is not placed in its correct relationship.

4. Many times the superior (and the job incumbent) is not sold on the plan because he feels it doesn't apply to his position. Often he has trouble interpreting the plan in terms of the position.

5. There often appears to be little logic in determining the importance of each factor of the plan in judging over-all performance on the position.

6. The weighting of the individual factor breakdown on the merit rating plan does not appear to apply to the particular position. For instance, many times a factor is important only up to the point where the man is performing in an average way. Beyond that it has no value in discriminating between good and poor performance. Many plans give this little consideration.

With the new approach that has been developed, you could ordinarily use almost any set of factors because the weighting procedure tends to minimize

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the effect on the position of those that have little meaning anyway. However, the application of the plan to most key positions seems to result in four primary factors: planning, day-to-day decisions, coordination of subordinates, and cooperation with others. At times there are other factors that may assume some importance, but these four seem to show up most often. Since only four factors are generally needed, the approach tends to simplify the actual merit-rating plan that will be applied.

How Do You Start?

First, you write down the major results expected from the man in the position. These should be available from a well-written organization description. In the case of a particular Plant Superintendent, they might be as follows:

1. Maintains or reduces unit manufacturing cost
2. Keeps total maintenance cost to minimum
3. Keeps plant safe
4. Meets shipping schedules

Each of these major results is then analyzed for any types of standards that may aid in judging them. (See Figure I.) These are entered in the column "Controllable Standard of Performance" (next to the "Result"). It helps if these results can be specific, i.e., 3 per cent waste, $2.16/unit, etc. Care must be exercised that the standard is one that can be met by the performance of the man, that it is controllable. Records of performance against these standards will later furnish a basis for the rating. Incidentally, the person who furnishes the record to the rater should have the responsibility later for providing interpretations of deviations. For example, waste may go from 2 per cent to 3½ per cent. Most of this may have occurred in a three-month period when a sudden rush of orders came in. This fact should be noted.

What's Important in the Job?

After this, you study each "result" and weight it as to its per cent effect on over-all performance. For example, "Maintains or reduces unit cost" was thought to be about 55 per cent of this Plant Superintendent's position. Ordinarily you arrive at this decision by weighing the dollar value that the result might contribute to the company. In general, ignore or combine items of less than 10 per cent.

You now decide the importance of each factor in judging the results. There should be a column on your Rating Analysis sheet for each factor, in this case one for planning, one for decisions, one for coordination of subordinates, one for cooperation with others. On each of the major results that you have listed mark whether or not the factor indicated is "important," "unimportant," or "very important" to success on this particular result. For instance, in order to rate the performance of the Plant Superintendent on "keeps total maintenance cost to a minimum," planning was checked as a "very important" factor; decisions "unimportant"; coordination "important"; and cooperation with others "unimportant." This is done for each major result.

Look at the number of "unimportant" *vs.* "important" *vs.* "very important" items on each factor; weigh these roughly by the percentage of weight you first listed under "percentage"; then write down an over-all rating for each factor of "important," "very important," or "unimportant" as to its value in judging over-all performance. This points up the part each factor plays in measuring the results from the man in the particular position, and allows you to pinpoint the rating more accurately, both (1) as to which factors you should be emphasizing and also (2) as to which results you should be considering most carefully (by the percentages assigned).

Result	*Controllable Standard of Performance*	*%*	*Planning*	*Decisions*	*Coordination*	*Cooperation with Others*
Plant Superintendent						
Maintains or reduces unit manufacturing cost	cost/unit compared to history % waste % idle man hours number of employees below standard % overtime premium labor turnover	55	Very Important	Important	Very Important	Important
Keeps total maintenance cost to minimum	$ maintenance and replacement cost per 1,000 machine hours	15	Very Important	Unimportant	Important	Unimportant
Keeps plant safe	insurance rate % lost time due to accidents frequency rate	15	Unimportant	Important	Very Important	Unimportant
Meets shipping schedules	number of times doesn't meet them customer complaints on shipping	15	Very Important	Important	Important	Important
	OVER-ALL RATING OF FACTOR		VERY IMPORTANT	IMPORTANT	VERY IMPORTANT	IMPORTANT
Purchasing Agent						
Makes sure plant has materials when it needs them	down time due to lack of materials failure to meet shipping schedules due to lack of materials timing of government allotment on materials	25	Very Important	Very Important	Unimportant	Very Important
Keeps materials cost to minimum	average cost of materials per previous purchase % inventory/sales savings on cheaper materials he recommends	65	Important	Very Important	Unimportant	Important
Gets best price on unused or obsolete equipment	sales price/book price sales price/new price	10	Unimportant	Very Important	Unimportant	Unimportant
	OVER-ALL RATING OF FACTOR		IMPORTANT	VERY IMPORTANT	UNIMPORTANT	IMPORTANT
Sales Manager						
Maximizes sales profit	$ sales profit % sales cost average % profit on sales reduction in cost due to loosening of customer requirements accuracy of sales forecast	50	Very Important	Very Important	Very Important	Unimportant
Maintains best flow of orders for efficient plant operation	lost time in production by department due to orders number of rush orders scheduled average of length of run allowed by orders	25	Important	Very Important	Very Important	Important
Maintains good customer relations	number of customers lost number of customers gained average % customer volume obtained	10	Important	Very Important	Important	Very Important
Pushes new product development	new projects OK'd to research department sales profit on new items	15	Unimportant	Very Important	Unimportant	Very Important
	OVER-ALL RATING OF FACTOR		VERY IMPORTANT	VERY IMPORTANT	VERY IMPORTANT	IMPORTANT

FIGURE 1

EXECUTIVE RATING ANALYSIS

How Do You Weight the Factors?

Next, you set up the points allowed for each factor, according to its importance in rating (preceding paragraph). To date, experience with the plan indicates that a rough weighting might be worked out as follows: An "unimportant" factor generally would be allowed 1/3 as much as a "very important"; an "important" would be allowed 2/3 as much. You would apply these factor weightings accordingly. You would assume a total of 100 points for any job. Applying this to the Purchasing Agent on the rating analysis, you would have the factor weighting shown in Figure 2 (below). If there are no major subordinates, you would eliminate the factor of "coordination" entirely.

How Do You Break Down Each Factor?

For a 40-point factor you would allow 8 points for the lowest rating, 16 for the next, 24 for the middle, and so on up to 40 points for the top rating. We are assuming a five-step breakdown. The bottom rating is for poor performance; the second for fair performance; the middle rating is for average performance; the second from the highest is a very good rating, and the highest is excellent. You may want to use more descriptive phrases for each step.

On a factor judged over-all as "very important," a man would be allowed the points assigned to his rating (24 for average, 40 for top rating, etc.). If the factor rated "important," points would be allowed in the same way, with this exception: anybody who got the second highest rating or over would get the total. From observation we have found that on such a factor increased excellence after a superior rating does not generally indicate better over-all performance. If a factor is judged "unimportant," anyone who rates average or higher would get the full number of points that would be allowed—since perfection on these factors beyond average seems to add little but time to performance. In other words, the factor is important only in the negative.

You will notice that the development of the merit-rating sheet itself is not given a place of paramount importance. The long deliberation over wording that customarily plagues merit-rating developers plays here a much less prominent part. In general, specific wording doesn't apply well to every position anyway.

What Do You Get?

This general approach allows you to establish a specific weighting of factors for a particular position. This allows you to emphasize performance on those factors which mean the most to the particular position. This tends to overcome the common tendency to over-emphasize such a factor as, say, cooperative results, where it doesn't mean a great deal except in a negative way. On such a job, a man can achieve most of the results expected in his position if he is

FIGURE 2

Factor	*Factor Value*	*Relative Val. of Factor*	*% of Rating*	*Points*
Planning	Important	2	25	25
Decisions	Very important	3	38	40
Coordination	Unimportant	1	12	10
Cooperation with others	Important	2	25	25
		8	100%	100

reasonably cooperative. Your rating will tend to reflect this. This pinpoints your rating.

By your percentage evaluation of each result, you have also given the rater a basis for deciding which items he ought to consider most heavily when arriving at his decision. If one result was set as 40 per cent of the job, and the only factor that seemed to contribute to it was cooperation, then that item would count heavily with the rater on that factor. You wouldn't weight that result very heavily on the other factors. This helps steer the rater toward a realistic emphasis of items. You tie the merit rating much more closely to the organization description, with the results that you expect from the job. You tend to emphasize the important factors and not the minor ones. Incidentally, such a plan, since it pinpoints the results much more closely, tends to force the supervisor to keep better records in order to point out accomplishment to the man.

It's assumed, of course, that you'll talk over this rating with the employee. If you thoroughly review the breakdown with him at the beginning of the period, it provides a good guide for steering him to the most profitable endeavors on his position. The rating approach will appear geared to his position. It will seem to apply!

A Training Plan for the Personnel Staff

Developing Civilian Personnel Managers in the Army

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One of the chief requirements for operating effectiveness in the large, decentralized organization is that of balancing uniformity with flexibility in the administration of personnel policies. The United States Army—which employs over half a million civilians throughout the world—has developed a comprehensive personnel training plan that prepares personnel executives at widely separated locations to work effectively with central management and to train and develop key members of their own staffs so as to achieve a thoroughly coordinated personnel program. Many of the principles and techniques discussed here are widely applicable in industry.

TO PROVIDE the type of staff leadership required for effective use of human resources, the Department of the Army has developed a comprehensive plan for training civilian personnel officers and personnel specialists. In December, 1945, the Army established a training center for personnel officers. In October, 1950, training centers for personnel specialists were established in six geographic areas. Since then, 1,400 personnel officers and key assistants have been trained at the center in Washington. About 2,500 personnel specialists have been trained in

AUTHOR'S NOTE: The views expressed in this article are the author's and do not necessarily represent the official viewpoints of the Department of the Army.

the regional training centers located in New York, Baltimore, Atlanta, Dallas, Chicago, and San Francisco.

The need for extensive training in civilian personnel management within the Army Establishment stems from the fact that the Army employs over half a million civilians in a wide variety of occupations scattered literally all over the world. This employment represents several hundred installations ranging in size from a few hundred to 10,000 or more civilian employees. To insure good management of the civilian work force in the Army, full authority is delegated to the work site wherever possible.

Role of the Staff Personnel Officer

The Army Establishment has over 300 installations with full authority to manage its civilian work force vested in the installation commander. To aid the local commander in accomplishing his assigned mission with a minimum number of employees, he needs a personnel officer capable of providing staff leadership and guidance in effective management of people. The Army has a responsibility to provide needed training to its staff advisors on personnel management.

The Civilian Personnel Officer Course

The course for civilian personnel officers is designed to develop a balanced perspective of the personnel job and its relation to the total management function. Such perspective is needed if the personnel officer is to function effectively as a member of the management team. Since the supervisor is the key to effective use of people, the role of the personnel officer in working with the supervisor is emphasized throughout. Detailed attention is also given to those policies, principles, and techniques which have been found effective in managing human resources in the Army Establishment.

The civilian personnel officer course is designed for key members of his staff as well as for the personnel officer himself. We have found that key people on the personnel office staff need a broad perspective of the total personnel function if they are to do an effective teamwork job. Training key staff members also contributes significantly to the development of understudies and cadre leaders who may be called upon to set up the personnel program at new installations. In addition, key management officials outside the personnel office who are responsible for providing leadership to a major segment of the civilian work force are also encouraged to attend. This is an application of the principle that the supervisor is the key to effective personnel management at the work site. Applied literally at any Army installation, this means that the Commanding Officer is really the chief personnel manager, even though he does have staff specialists to help him carry out this responsibility. The personnel officer performs a function which is primarly advisory and consultative in nature, and provides services which can be provided more economically from a central source.

Other Courses Offered

In addition to the personnel officer course, basic courses in Salary and Wage Administration, Employee Utilization, and for Training Specialists, are given in six regional training centers. The salary and wage course is designed to develop an understanding of the objectives of the Army salary and wage program[1] and its relation to the total management job, and to develop needed skill in the basic process of job analysis and job evaluation. Job analysis is treated from the standpoint of gathering needed facts about work done, analyzing these facts, grouping like positions into jobs and

[1] For more detailed treatment of Army Salary and Wage Administration, see PERSONNEL, March 1950, "Army Wage Administration" by William F. Sorensen, Jr.

organizing and recording the data in the form of job descriptions. Both theory and practice in evaluating jobs are treated, with primary emphasis on what the analyst does in the work situation.

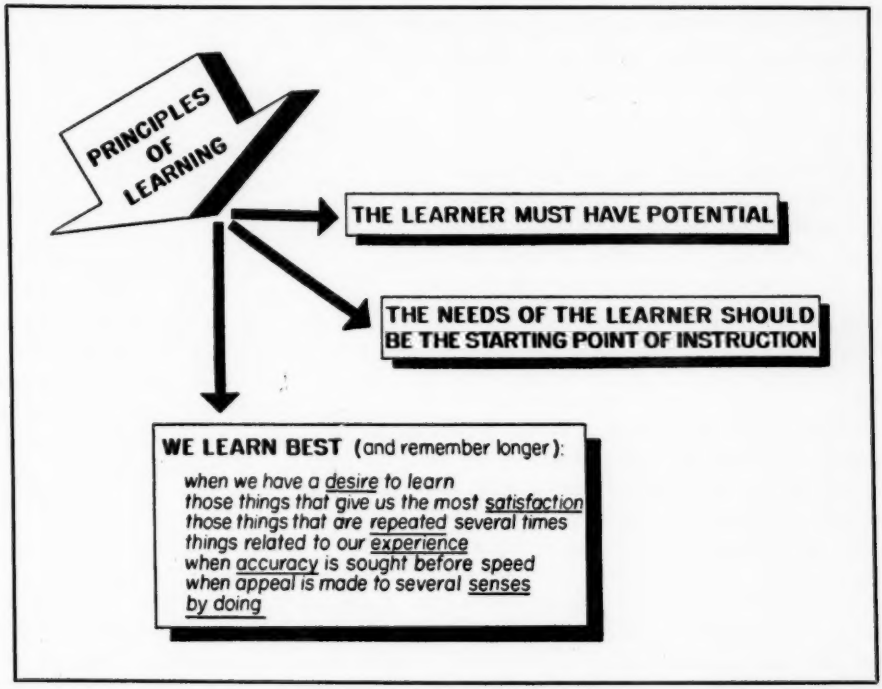
The employee utilization course is concerned directly with the selection, training, and use of people in the accomplishment of a given objective. Since the real job of using human resources to best advantage rests with the supervisor, this course is designed to equip the personnel representative to help the supervisor with this responsibility. The course deals first with recruiting, selecting, placing, and orienting employees. It also gives major emphasis to the role of the personnel representative in helping the supervisor to evaluate the performance and potential of his employees, to plan for better use of their ability, to train them for full productivity, and to develop and maintain a "will to work." Finally, it is concerned with evaluation of results in terms of getting the job done. This involves the analysis and interpretation of data such as quit rate, promotions, grievances, absences, and similar indicators of need for better use of human resources.

The Training Specialist Course is designed for full-time training officers and for chiefs of employee utilization who have major staff responsibility for the training function. The course aims to develop a basic understanding of the role of training as an integral function of management. It treats the basic process of determining training needs, planning to meet those needs, giving training, and evaluating the results. Attention is also given to the skills used in off-the-job training, such as giving a talk, and leading a conference discussion. A substantial amount of time is devoted to practice in leading conferences, since this is a widely used technique in training supervisors.

In order to assure full benefit to the Army from these courses, specific criteria for admission to each course have been developed. These criteria aim to do two things: first, to insure that the individual coming to each course is *ready* for the training given, and secondly, to insure that he will *use* the training in his job assignment. We seek to accomplish the first objective by requiring certain experience and planned on-the-job training, before attendance. A *Guide for Developing Personnel Staff* has been developed for use by the personnel officer in planning needed on-the-job training. The second objective is accomplished by limiting attendance at each course to those who have specified job assignments. For individuals to be trained in several courses, attendance is spaced to provide a minimum of six months' on-the-job application of the techniques learned. This on-the-job application occurs immediately after completion of a given course. The *Guide for Developing Personnel Staff*, prepared by the Training Center, offers suggestions to help the installation get full return from the off-job training given and to aid in its immediate application.

Training Overseas

Where the need justifies, and where it is more economical to bring the training to the people who need it, training courses are given at overseas locations. In 1949, the Far East Command requested that we conduct two classes in Employee Utilization at its Headquarters in Tokyo, Japan. Course content was based on analysis of need in that Command. Two instructors from the Training Center in Washington, together with the Deputy Director of Civilian Personnel for the U. S. Army Pacific and the Training Officer at General Headquarters in Tokyo, were selected to give the course. In the two classes, 84 personnel officers and key assistants attended. Since they came from seven subordinate Commands, complete coverage of the technical staff in each personnel office was possible.


PRINCIPLES OF LEARNING
THE LEARNER MUST HAVE POTENTIAL
THE NEEDS OF THE LEARNER SHOULD BE THE STARTING POINT OF INSTRUCTION
WE LEARN BEST (and remember longer):
when we have a desire to learn
those things that give us the most satisfaction
those things that are repeated several times
things related to our experience
when accuracy is sought before speed
when appeal is made to several senses
by doing

With several people from the same personnel office staff being trained at the same time, the mutual reinforcement they provided each other upon completion of the course contributed significantly to the results attained.

Training for employees stationed overseas is not limited, however, to courses that may be given in overseas localities. In the Civilian Personnel Officer Course, for example, about four or five people in each class are from stations in Alaska, Hawaii, Panama, Europe, Okinawa, and Japan. Employees are brought to Washington for training where the number to be trained in a specific locality is not large enough to justify giving the course in that locality.

Methods Used

A variety of training methods have been found to be effective in developing knowledge and skill needed in the personnel field. To develop the needed information relating to basic principles and policies of the Army civilian personnel program, lecture-discussion is used. Visual aids are used to highlight key points. Presentations are normally 30 to 40 minutes in length, and are given by members of the full-time training staff and key members of the Army's Office of Civilian Personnel. This affords the opportunity for the personnel officer to get a broad coverage not only from qualified instructors, but also from those who are responsible for developing the policies and programs presented in the course. Those attending are provided with outlines of the subject matter presented, together with notebook size copies of visual aids used. (One such visual aid, setting forth Principles of Learning, is reproduced in the accompanying illustration.) These outlines are distributed as the course progresses and form the basic text material for current study and future reference.

Conference Discussion

Following the informational sessions, the application of the principles and policies is examined further in conference discussions. For example, in the Civilian Personnel Officer course, 45 people are normally enrolled in each class. The basic information is presented to the entire group. Following these presentations, the class is subdivided into three conference groups of 15 each. The conference discussions continue for one to one and one-half hours, depending on the scope of the topic.

Although the skill of the leader is a significant factor in the success of the discussion, the conferees share to a very large extent in its success. This is particularly important in human relations training. The objective here is not to come up with certain "pat" answers. Rather, the objective is to help each conferee to understand himself better, to analyze and evaluate a given problem, to help him think constructively, and to equip him to use his experience to better advantage. The role of the leader, then, becomes one of stimulating discussion, keeping it moving, guiding it along fruitful channels, bringing out group members, helping to clarify points under discussion, and summarizing.

This type of conference approach has a significant influence on attitude. Conferees are encouraged to discuss their experience and to examine local installation practices relating to any topic under discussion. Where that practice is sound, the group will usually accept it as such. Where it is open to question, the group will often challenge it. Here the insight of the leader in helping conferees to examine current practices is vital. He may ask questions, such as: "How would this work at *your* installation?" or "What *effect* would this have in your shop?" "*Why* do you feel that way about it?" After such analysis, conferees frequently volunteer comments such as: "I see where I can improve what we've been doing" or "I see why I've been ineffective."

Three-way communication is important here. In question-and-answer sessions which characterize the lecture-discussion, two-way communication is prevalent, i.e., from the leader to the group and from the group to the leader. But in the conference, effective communication between members of the conference is essential. Free exchange of ideas among conferees helps them to change their attitudes by reflecting upon and re-evaluating their own experience. Often we find it necessary to unlearn some things "that ain't so" before we will accept the basic truths which all of us are seeking.

Role Playing

Many of the skills needed in the personnel field are developed primarily through guided practice. This is true of interviewing, on-the-job training, conference leadership, and similar skills. For example, to develop skill in the interview, the group analyzes the types of situations in which interviews occur and the purposes to be accomplished in each situation. The interviewing technique is then examined to develop needed insight into the techniques appropriate in each situation. Skill in use of a specific interview technique, however, comes only through practice of the right kind. Practice is normally more meaningful if preceded by demonstrations. This is accomplished in several ways. It can be done by using recorded demonstrations. In this case, a recorded interview is played to the entire group. In other cases, live demonstrations may be used. Here the interview technique is demonstrated by two members of the group, working from a prepared script. In either case, an analysis and critique of the technique demonstrated is made by the group. This provides a basis for in-

dividual practice which follows. Where the technique to be demonstrated is more complex, analytical role-playing technique is used. This has been found to be most effective in developing needed insight into such techniques as the Assistance Interview—a basic tool for helping the supervisor evaluate the performance of his employees and to plan for full use of their abilities.

First, a brief explanation of the technique—its purpose and method—is given. Then the conference group applies the interview technique in a specific situation. To insure full understanding of that situation, the conference leader charts the organization on the board, gives the names of the employees around whom the interview will center, and a general indication as to the type of individuals they are. The leader is also equipped with a set of facts about each employee in the situation, facts which will be brought out during the interview if the technique is properly applied.

The conference leader takes the role of the supervisor. The conferees take turns playing the role of the personnel specialist in applying the interview technique. Given the situation, the conferees are asked where they would start the interview. When group agreement is reached as to the best point to start, one conferee volunteers to open the interview. Where the technique is new to the conferee, he is encouraged to refer to a one-page outline of the steps and key phrases involved in the interview. (This outline is reproduced on the illustration on page 490.) He continues until he has completed one phase of the interview; or, if he encounters difficulty, until he cannot make further progress.

At this point, the leader stops the interview for analysis by the group. To help the interviewer understand more fully what happened, he is usually given the first opportunity to comment on the technique as it was applied. If he was fully successful, it is important that both he and the group understand why. If he had difficulty, it is important that he be led to recognize the point of difficulty and how proper application of the technique would carry him over that point.

Having analyzed the reasons for success or failure, and what to do to insure successful application of the technique, another conferee picks up the interview and carries on through another stage. At the end of each stage, a similar analysis is made and other conferees take their turn in applying the technique. Each conferee is thus given a chance not only to apply the technique, but to observe its application to a specific situation by other conferees, and to analyze the reasons for success or failure. At the end of the session, the leader emphasizes the key points which have been brought out, and highlights the essential steps that need careful attention to insure successful use.

Case Problems and Workshops

To develop insight and ability to apply guiding principles in specific situations, case problems and workshops have proved effective. They also stimulate the individual to reflect upon and evaluate similar situations at his own installation. The case problems are developed from information gathered in narrative reports of installation conditions or from personal visits to installations. This information is carefully edited to avoid revealing the identity of the installation and still preserve the realism needed to make the problem an effective learning medium.

Problems may range in length from a short paragraph to several pages. They deal with such subjects as methods of giving assistance to supervisors, use of consultative management, delegating authority, rewarding employees, discipline, grievances, separations, and re-

THE ASSISTANCE INTERVIEW

Evaluation Phase

Steps	*Key Phrases*
1. Get supervisor's general reaction to employee	How's he doing? (Reaction may already be evident from preceding discussion)
2. Get him talking in terms of specifics	In what way is he particularly good? What is he doing well? In what way is he particularly weak? What is he doing poorly? Have you noticed (any particularly strong points or weaknesses)?
3. Get all the specifics	In addition to ....., is there anything else? Anything else? Is that about all, or is there anything else?
4. Check the other side	In addition to these good points, are there any weaknesses you have noticed? Is he entirely weak, or have you noticed any good points? What are they?

Planning Phase

5. Get the story of what has been tried	What help have you given him? What results have you had? What training has he had? What training does he need? What have you done to interest him? What results? What have you done to cash in on those strong points?
6. Ask sup'r about his plans	What plans do you have?
7. Test his plans for soundness	Is he really that weak (or that good)? Is this performance typical? Is he worse (better) than others not being considered for the same action? Have you warned him? Have you tried to help him? Have you tried him out on that?
8. Suggest a plan if he has none or an unsound one (and you have a good one)	Had you considered ..... with the result that .....?
9. Commit him to act	Do you believe that would solve the problem? Is it agreeable if I make a note that you plan to do that and check back with you? Let's see if I have this right—you are going to ..... (Re-state the plan)
10. Follow up on results	How has that plan you had for Mary been working out?

lated topics. The realism of the cases is reflected in comments from the conferees such as: "Did this come from my installation?" "Do you want me to give you the name of the foreman described?" "This reminds me of a case we had just like this."

Workshops aimed at developing skill in evaluating the results of personnel management are based on installation reports which have been adapted for use in a training situation. One such workshop was described by a personnel officer as the "crowning glory" of the entire course. Reactions from those taking the courses indicate that case problems and workshops provide one of the most fruitful learning situations. They give actual experience in decision-making and the factors to be considered in taking action.

Follow-up and Evaluation

To be effective, any training plan should provide for follow-up and evaluation of the results achieved at the job site. This is accomplished in several ways. Upon completion of a course, each participant is asked to criticize the course. He is asked to comment on any part of the training which he feels will be particularly helpful. He is also asked to make suggestions for improvement. These suggestions are made in writing so they can be tabulated and analyzed by the training staff. Those suggestions which are judged to be worth while are incorporated in subsequent revisions of the course.

Visits to the field installations are made for the purpose of evaluating the results of training given, as well as to get further suggestions for course improvement. The timing of these visits is important, both from the standpoint of installation activities at the time of the visit and the interval which has elapsed since completion of the training. To allow ample opportunity for application, follow-up visits are normally made six months to one year after the completion of a training course.

During the visit we have an opportunity to get from the graduate, from his supervisor, and from the operating supervisors he serves, candid opinions as to the results of the training. An attempt is also made to evaluate the results of the training in terms of improved work performance. Statements from commanding officers, from key management officials, and from the graduates themselves are helpful in appraising the results of the training.

While opinions from key people are valuable, more specific indicators of improved work performance are desirable. These can usually be obtained by follow-up on the opinions expressed. If the supervisor says the graduate is doing a better job as a result of the training, it is necessary to get some specifics. "In what respect is he doing a better job?" If he says, "Revised policy statements have been developed and more effective help to the supervisor is given," a review of the policy statements and a check with the supervisors to whom assistance is given will usually provide the specifics needed.

Follow-up visits indicate that the majority of those attending the courses benefit significantly and are equipped to do a better job as a result of the training. Among the most frequently reported benefits are: a feeling of greater confidence on the part of the individual to do an effective job; a better understanding of the staff-consulting role; improved supervisor training; and greater know-how in helping the supervisor with his human relations responsibilities.

The conference method has resulted in a better understanding of how to approach common problems, has helped develop better teamwork within the personnel office staff and has stimulated efforts for continued professional de-

velopment. This is especially true where there has been rather complete coverage in training the technical staff in each personnel office within a short period of time, such as resulted from the courses given in the Far East Command.

In addition to giving valuable information as to results of the training and additional suggestions for course improvement, the follow-up visits also serve to keep us in touch with the "grass roots" of the vast Army organization we serve. The visits also give us material for new case problems and workshops, which must be continually revised if the training is to live in a climate of reality. These contacts often serve as a stimulus to the graduate in carrying out his plans for improving the quality of personnel management in his installation.

Policies and Practices in Job Evaluation: A Survey

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While a company's job evaluation plan should be formulated and administered in accordance with its individual needs, it is of interest, and sometimes of help, to consider and compare the practices of other companies with regard to the use of job evaluation and methods for promoting its acceptance. Reported here is the experience with job evaluation programs of 17 aircraft manufacturing companies, all but one of which rated their programs as "satisfactory" or "highly satisfactory." While this survey was confined to the aircraft industry, the findings will be of more general interest and can be applied to many other industries.

A RECENT SURVEY of job evaluation programs in 23 aircraft manufacturing companies located throughout the United States reveals not only the extent of utilization of this management technique in the field, but also the procedures and practices followed by these companies in installing and maintaining their programs. For the purpose of this discussion, the data have been divided into six major areas. They are: (1) the history of job evaluation in the aircraft industry, (2) methods used in securing the cooperation of supervisors and employees, (3) types of rating plans used, (4) organization for and conduct of the job evaluation installation, (5) measures taken to insure company acceptance and advantages gained from the program, and (6) procedures followed in maintaining the job evaluation program.

History in the Industry

Seventeen job evaluation installations were found among the 23 aircraft industries answering the questionnaire.

One of the 23 companies stated that it

This article is based on a monograph to be published in the near future by the Bureau of Business Research, The University of Texas, Austin, Texas.

is now considering the possibility of installing a formal plan. Thus 18 of the companies either now have a plan or expect to have one in the not-too-distant future. Another of the firms relies upon an informal job rating plan, and the twentieth company reports no program or plan to install one. One of the 23 respondents replied that it had formerly had a job evaluation program, but because of administrative inflexibility had discontinued it.

It is thus apparent from the above that job evaluation is well entrenched in the aircraft manufacturing industry and that only one of the group has had such an unsatisfactory experience with the program that it discontinued its plan. The majority of these companies (72 per cent) completed their programs during the war years, 1941-1943. Various reasons were given for installing the programs and almost all the firms had several in mind. The programs were most frequently put into effect in order (1) to provide definite, systematic, and factual data for determining the relative worth of jobs, (2) to create equity in salary administration, (3) to improve salary administration, (4) to standardize salary administration, and (5) to establish a basis for placement and promotion.

The original idea for investigating the advantages of a job evaluation program came from representatives of management in all but one of the companies. The personnel manager has taken the initiative in more companies than has any other individual. However, the president of the organization has been relatively active in promoting job evaluation installations. In all the companies, top management authorized the job evaluation study. The president granted the authorization in more firms than did any other individual or group. The board of directors and the executive committee were responsible for the authorization in a number of organizations.

Winning Acceptance of the Plan

These aircraft industries, in the initial stages of inaugurating their programs, recognized the necessity of informing supervisors regarding the objectives sought and the techniques of administration. Different methods for obtaining this objective were followed, but the most popular ones were staff meetings, departmental group meetings, and conferences with individual staff members.

The problem of acquainting non-supervisory employees was approached with similar thoroughness. The principal methods used in informing non-supervisory workers were: (1) information from union representatives, (2) information from supervisors, (3) stories in employee publications, (4) special bulletins, (5) individual conferences, and (6) letter or memorandum from president. In striving to acquaint both supervisors and workers with the objectives and techniques of the job evaluation plan, the personal approach was stressed. The advantages to both management and the workers were emphasized in trying to give information regarding the plan to each group. The *why* as well as the *how* was given.

Types of Rating Plans Used

There are four generally accepted methods of evaluating the relative worth of jobs. These are the ranking method, the job classification or grading method, the factor-comparison method, and the point method. Although individual companies may alter the plans in some respects to fit their particular needs, the original classification of plans by type appears to remain unchanged. Various surveys have shown that the point method is the most widely used plan of the four. The factor-comparison method follows the point, and the grade or classification method is third in popularity. The ranking method has been used in fewer instances than any of the other three. Four-

teen of the 17 aircraft companies either use the point plan alone or have combined certain of the point rating techniques with other methods of rating, such as the grade or classification system, to develop their particular rating plan. The two major reasons for the choice of the rating plan were: (1) used by other companies in the field, and (2) better suited to company needs. (See Table I.)

TABLE I
REASONS FOR CHOICE OF PLAN

Reason	*No. of Companies*	*% of Companies*
Better Suited to Company Needs	11	29.7
Recommended by Management Consultant	5	13.5
Used by Other Companies in the Field	12	32.5
Fewer Problems of Administration	3	8.1
More Information About the Plan	1	2.7
More Easily Understood by All Employees	4	10.8
No Answer	1	2.7
Totals	37*	100.0

* Some companies indicated more than one reason.

A representative of the personnel or industrial relations department, serving alone or with another individual or group, has selected the plan to be used in evaluating jobs in most of the organizations. The committee plan was not so popular in selecting the rating method as was the assignment of this responsibility to one person. More organizations assigned the responsibility for designing the plan to one person than to a committee. The most popular assignment was to the wage and salary administrator.

Organization for and Conduct of Job Evaluation Installations

In installing a program of job evaluation, by the very nature of the work itself, the procedure to follow, or the sequence of steps, does not lend itself to much variation. The proposed program must be introduced to the company, the rating plan selected, job facts secured, job descriptions written, jobs rated and classified, pay rates determined, and administrative policies established. An analysis of the steps reported by the companies reveals that in all cases the typical sequence was followed. Certain major phases of the respondents' programs, however, will be elaborated upon in order to show the specific procedures used in this field in executing the major steps.

In most of the aircraft companies, the job evaluation program was installed by members of the executive, supervisory, or staff groups within the company. The most popular practice was to assign the entire responsibility to company employees. In some organizations they were assisted by management consultants; one company reports that they assisted management consultants. The use of a management consultant to install the whole program was not reported by any company. Several reasons for primarily utilizing company employees were given. The four most frequently cited were: (1) they were well-qualified to install the program, (2) they knew the organization better than an outsider could, (3) participation trained the group for maintenance of the plan, and (4) participation aided in securing acceptance and understanding of the plan. In the majority of the firms, those responsible for installing the job evaluation program were assigned to the personnel department.

The over-all direction and coordination of the programs has been evenly divided between one-man and committee control. The person or group which is responsible for the over-all direction of the program has usually established the installation procedures, selected the personnel to carry them out, and maintained and ad-

ministered the program after it has been installed.

The six major functions of the jobs which were rated with the greatest frequency were: (1) responsibility, (2) knowledge, (3) effort and skill, (4) physical conditions, (5) personal and social conditions, and (6) supervision. Several of the companies had a number of subfactors under the major factors listed above, while others did not break down the factors. Some of the respondents did not use exactly the same factors for rating their hourly-paid and salary-paid jobs. Others appear to have used the same set of factors for both groups. The major factors with the subfactors used in the aircraft companies are shown below:

Factors Used	Frequency of Use		
Responsibility for:	*Hourly*	*Salary*	*Same for Both*
Responsibility (General)	6	1	3
Material	1		4
Equipment	1		3
Safety			2
Costs		6	
Confidential Information		1	2
Effect of Errors			2
Work of Others			2
Policy Interpretation		1	
Production			1
Managerial Duties		1	
Totals*	8	10	19
Knowledge:			
Mentality	7	6	1
Mental Ability			1
Analytical Requirements		2	
Education		2	4
Experience		6	4
Analytical Ability		5	1
Training and Experience			1
Judgment		4	1
Problem Solution		1	
Originality			1
Education and Training		1	
Applied Knowledge		1	
Totals*	7	28	14
Effort and Skill			
Initiative		5	3
Physical Application	7	6	5
Skill	5		1
Mental Application	6	6	4
Complexity			1
Visual Attention		1	
Totals*	18	18	14
Physical Conditions			
Job Conditions	6	5	1
Hazards	6		2
Working Conditions		1	3
Totals	12	6	6
Personal and Social			
Cooperation and Contact		4	
Skill in Dealing With People		1	
Contacts With Others			2
Cooperation		1	
Coordination		1	
Totals		7	2
Supervision			2
Scope of Supervision Given		1	
Totals		1	2

* Some companies indicated more than one factor in the group.

Almost one-half of the aircraft industries have rated all jobs up to, but not including, the department heads. Almost one-third of the firms included department heads and approximately one-fourth rated through the top executive level. (See Table II.)

TABLE II

Range of Jobs Covered In Job Evaluation Programs

Range	*No. of Companies*	*% of Companies*
Up to Department or Division Head	8	47.1
Through Department or Division Head	5	29.4
Through Top Executive Level	4	23.5
TOTALS	17	100.0

* Some companies indicated more than one factor in the group.

The wage and salary administrator has been responsible for determining the range of jobs in more cases than has any other individual or group; however, a rather wide range of assignment was revealed generally. Those responsible for determining the range to include were assigned to the personnel or industrial relations department in the majority of cases.

The method most frequently used for obtaining the needed information for writing the job description was interviewing the supervisor. Interviewing employees for job facts was next in popularity; in many cases, both were interviewed. A few organizations used questionnaires alone or to supplement the interview, but this was not a major trend. (Table III.)

TABLE III

METHODS USED TO OBTAIN INFORMATION FOR JOB DESCRIPTIONS

Method	*No. of Companies*
Interviewing Employee on Job	13
Interviewing Supervisor on Job	16
Questionnaire Filled In by Employee	4
Questionnaire Filled In by Supervisor	3
Questionnaire and Interview from Employee	3
Questionnaire and Interview from Supervisor	4
Observation of Operations and Duties of Job by Analyst	4
No Answer	1
TOTAL	48*

* Some companies specified more than one method used.

The title of *job analyst* was assigned most frequently to the person obtaining the job facts. Final job descriptions were usually prepared by the same individuals who obtained the job facts. The final job descriptions were approved only by the supervisors in the majority of the companies, although it is recommended practice to have employees participate in this step.

Several methods were used to train employees in analyzing jobs. The four used with the greatest frequency were: (1) studied job evaluation literature, (2) prepared sample job descriptions which were criticized, (3) learned procedure for getting job facts, and (4) learned principles of interviewing.

Jobs were rated more frequently by one individual than by a committee. The job analyst or the wage and salary administrator rated the jobs in more companies than did any other person. The same person or group who rated the jobs was responsible for verifying the rating in the majority of the organizations. The same individuals who were responsible for other major steps of the installation were also responsible for the training program developed to train the job raters. The primary methods used to train the raters were: (1) studied job evaluation literature, (2) learned procedures for rating, (3) studied rating system chosen, and (4) rated sample job descriptions which were criticized.

After the jobs were rated, they were grouped into classes in all the companies. However, the trend found in the aircraft industry was to use more than the 10 classes—which is the average number found in other fields of activity. (See Table IV.)

TABLE IV

NUMBER OF JOB CLASSES OR JOB GRADES IN JOB EVALUATION PLANS*

No. of Classes or Grades	*No. of Companies*
10 to 14	2
15 to 19	2
20 to 24	2
25 to 29	2
30 to 34	1
35 and over	6

* Based on 15 answers.

Only two companies reported as few as 10 classes, while the remainder stated that they used from 15 to 60 with the heaviest concentration from 25 classes or more. The person or group responsible

for determining the number of classes to use in a particular company was the same one who rated the job.

The length of time required for completing the installations varied among the companies. Slightly over one-half required less than one year to install their plans. The remaining companies reported one or more years were necessary. Conditions within the company itself seem to be the primary reason for the time variations rather than the number of job descriptions or the particular agency directing the work.

Measures to Insure Company Acceptance

After the proposed job evaluation plans were completed, those individuals responsible for their development usually met with members of top management to explain the details of the programs, and to secure final authorization for adoption of the plan by the company. Meetings with supervisory groups for the purpose of explaining the details of the new plans in order to secure their acceptance was the most popular practice followed by the aircraft companies in introducing the completed program of job evaluation. Other popular procedures which helped gain their acceptance were: (1) participation in developing the plan, (2) individual interviews with supervisors, (3) distribution of descriptive literature, (4) letters or memoranda about the plan from the president, and (5) stories in the employee publications. The procedures followed to win the support and confidence of non-supervisory employees were: (1) memoranda or letters from the president, (2) stories in the employee publications, (3) distribution of descriptive literature about the plan, (4) meetings with employees, (5) participation in installation, (6) individual interviews with employees, and (7) incorporation in union contract. (See Table V).

Advantages Gained from the Program

All the aircraft companies expressed satisfaction with their plans, though the degree of satisfaction varied to some extent. Over one-half of the organizations stated that their plans were *highly satisfactory*. Slightly less than one-fourth of the companies indicated *satisfactory*, while one organization modified the term with *fairly*.

Among those advantages named most frequently were: factual basis for determining the worth of jobs; salary equity; consistency and uniformity; standardization of salaries; better policies of promotion, transfer, and placement; and better morale.

TABLE V

METHODS USED TO WIN ACCEPTANCE OF THE PROGRAM

Method	*Group Directly Affected*		
	Top Management	*Supervisors*	*Non-supervisory Employees*
Meetings	13	15	3
Participation	10	10	3
Descriptive Literature	5	7	4
Memoranda or Letter from President	7	6	6
Individual Interviews	5	9	3
Employee Publications	5	4	5
Incorporated in Union Contract in '42	—	—	1
Total	45*	51*	25*

* Some companies indicated several methods used to secure acceptance of their plan.

Maintaining and Controlling The Program

Once the job evaluation program has been installed, most of the aircraft concerns attempt to keep their programs up to date. They realize that old jobs change in duties, new jobs are created, policies of administration require review, and so on. Particular methods for maintaining the program vary among the companies; however, most of the firms use several procedures to accomplish this purpose. Three procedures used by practically all the companies were: (1) supervisors report job changes to job evaluation division, (2) supervisors report new jobs to job evaluation division, and (3) companies maintain a permanent job evaluation organization. Three other procedures were followed by half or slightly less than half of the firms, namely (1) conduct a periodic re-evaluation of all jobs, (2) conduct periodic wage surveys, and (3) record any changes in plan immediately. (See Table VI.)

TABLE VI

HOW PROGRAMS ARE KEPT UP TO DATE

Method	*Companies*
Supervisors Report Job Changes to Job Evaluation Division	16
Supervisors Report New Jobs to Job Evaluation Division	15
Permanent Job Evaluation Organization Maintained for Rating Jobs	14
Record Corrected Immediately to Show Changes	7
Periodic Wage Surveys Conducted	8
Periodic Re-evaluation of All Jobs Made	9
Audit Classifications and Jobs Every Six Months	1
Analysts Report Changed Conditions and Prepare New Job Descriptions and Evaluations	1
Grievance Investigation	1
No Answer	1
Total	73*

* Some companies indicated several methods were used to keep their plan up to date.

Centralized control of the plan is maintained in all the organizations, and is centered with the wage administrator in the majority of cases. Some degree of variation exists in the areas of control but the more important ones are: (1) routing all recommendations for salary increases through the centralized unit in order to check for conformance with the plan, (2) conducting periodic wage surveys for the purpose of checking rates paid by the company against the going rates for the area, (3) observing the day-to-day functioning of the program in order to ascertain weaknesses, and (4) conducting research in the field of job evaluation in order to keep abreast of the trends. (See Table VII.)

TABLE VII

CONTROL EXERCISED BY CENTRAL CONTROL AGENCY

Control	*Frequency*
All Salary Increases Cleared Through Centralized Unit to Check for Conformance with Plan	14
Close Observation of Day-to-Day Functioning to Ascertain Weakness in Plan	12
Recommend Improvements in Program	6
Keep Alive Interest in Program	5
Research to Keep Abreast with Trends in Job Evaluation	9
Conduct Periodic Wage Surveys	13
Monthly Job Audits	1
Negotiate All Wages and Classifications with Bargaining Units	1
No Answer	2
Total	63*

* Some companies indicated several methods of control.

All companies answering this question have encountered certain operating difficulties with their plans. The problems most frequently reported were: (1) insuring uniform interpretation of the program, (2) getting changes in jobs and the creation of new jobs reported promptly to the job evaluation division, (3) receiving pressure to increase individual rates above the maximum rate of the job,

(4) maintaining experienced personnel to administer the plan, (5) keeping the executive and supervisory group "sold" on job evaluation, and (6) keeping everyone informed about changes in the program.

Conclusions

The aircraft industry, like other industrial and non-industrial industries, has found job evaluation to be a tool that can be used effectively in the solution, or at least in the adjustment, of problems arising from inequities in wages. It is no substitute for collective bargaining in organizations where union-management relations exist, but it does tend to minimize points of friction when accepted by both sides in good faith.

None of these organizations appears to believe or claim that all the problems involved in their salary structures, or in the paying of employees, have been completely resolved. They seem to recognize that job evaluation is not a panacea for all ills, and that the technique is by no means so scientifically exact that all errors can be corrected. The factor of human judgment is involved and therefore certain inequities are bound to occur. However, because job evaluation provides an orderly and systematic approach to determining the relative worth of jobs, the consensus of the group appears to be that it has helped reduce or minimize errors and inequities in the setting of wages and salaries. Therefore, the conclusion can be drawn that job evaluation is considered worthwhile in the companies surveyed and that their programs will continue to operate in the foreseeable future.

The Ideal Supervisor: Primarily an Extrovert?

IS A SUPERVISOR who is well liked on the assembly line likely to be equally popular in the front office?

The answer is yes, according to a group of 18 foremen participating at a recent Industrial Management Institute at the University of Wisconsin. The group drew two blueprints of what makes a good supervisor. The first described the traits looked for by management, the other, traits employees seek in their supervisor. One point drew general agreement: "Personality boys," who go in for backslapping and endless "chewing the fat," don't make good supervisors.

Here are some of the ingredients the group decided management wants: A company expects a man to be a good organizer and operator, capable of directing his department and handling his employees. He must have technical knowledge and skill. The company will watch the quality as well as the quantity of output, the turnover of his department, and the number and severity of grievances that arise in it.

Here are some of the traits employees look for in supervision, according to the group: A worker wants his boss to have plenty of technical know-how. He wants him to be fair—in the assignment of work and in the assignment of overtime. He wants him to be someone whose word he can trust. And he thinks a good boss should give him recognition, when he deserves it, on the spot—not six weeks later. The same goes for discipline.

The group then matched the lists and decided there weren't any real differences between them. Its final list of traits for an ideal supervisor: Character, integrity, dependability, loyalty, effective intelligence, technical skills and knowledge, maturity and self-control, drive and follow-through, ability to get along with people.

"A little introversion, an ability to think reflectively, is more important than a big dose of extroversion and hail-fellow-well-met attitude," a spokesman for the group concluded. "The fellow who makes less noise and does more thinking is more likely to understand other people."

The Validation of Tests

EDWARD N. HAY*

When unsatisfactory results are obtained from an employee selection program, the reason may be that the tests used lack validity—i.e., they do not really measure the characteristics they are believed to measure. A common fallacy is to assume that a test which has established a general reputation for accuracy will be useful and relevant in every situation. For best results from a selection program, personnel executives need to be aware of the importance of validation and of the steps involved in the task of validating tests in a specific situation.

LET US BEGIN with an understanding of what *validity* is. A test is valid if it will actually measure the thing which it is supposed to measure. An arithmetic test is a measure of how much you know about arithmetic. In this case the validity is quite obvious. This is because the test contains exactly the same kinds of items that were in your course in arithmetic. When you come to tests of mechanical or clerical "aptitude," however, the situation is not so clear. To begin with, you need to be sure you know what "aptitude" is and what relation it bears to success in your business.

After all, the only purpose of testing job applicants is to try to improve your chances of getting the best ones. "Best ones" means those who, after employment, prove to be the best workers. In other words, the test should *predict* which applicants will become the best workers after a period of training and experience. Consequently, a test is valid if it is efficient in prediction. Or, it is more accurate to say that a test is valid *to the extent that* it will predict who will be the better workers.

It is essential that any test which you use eventually be validated in the situation in which you use it. It may well be that a test will be valid for another employer but not for you, perhaps because of differences in the type of work you do. This article is based on the assumption that you wish to validate tests which you are using in order to make certain that they are actually "doing the job" in your employment office. This is, of course, a very practical problem. While there is some assurance that the test will be valid for you if your conditions are like those of the employment office in which the test was first developed, you can never be sure. Consequently, sooner or later, you must face the problem of whether the test is in fact valid for *you*.

Suggestions for Testing

Before getting more deeply into our subject of validation it might be well to review briefly some of the considerations that should be kept in mind in adopting tests for employment purposes. To begin with, unless you have a very skillful psychologist, well trained in test construction, you had better depend on tests which you can purchase from reliable sources. In selecting such tests use the same judgment you would use in buying anything else. For example, find out who

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is using the tests and get from them some statement of their proven value. Use tests sponsored by reputable people. Ordinarily a test should not be used which has not been validated already in a situation somewhat similar to your own.

Since expense is important in business and industry it is essential to select tests which will do the job you want done in the least possible time. As an example, some clerical tests require more than an hour for administration. This is far too long. Other tests are available which have proven their value and which require 15 minutes or less. In selecting tests for brief administration it is, of course, unwise to sacrifice predictiveness, or validity, of the test. In other words, no saving in time will compensate for any material loss in the ability of the test to do the job you want done.

Begin with a Job Analysis

To begin with, let us assume that you want to make a careful study in order to decide what kind of tests you should use in a given employment situation. There is no test of completely general application. It is advisable, therefore, to begin with a detailed study of the job for which you are going to test.

The first thing to do is to write a brief description of the job. Next, study every detailed motion and write down a list giving the sequence of operations being performed. Sometimes it is advisable to list not only the operations themselves but, with each operation, a list of the hand and eye movements necessary in the performance of that operation.

The Job Psychograph

On the basis of this operation and motion study it is now possible to list the psychological and physical requirements for each job. This is sometimes called a job profile or job psychograph. From a study of this list of physical and psychological requirements, tests may be selected—or designed—to measure these particular functions.[1]

Initially, the selection of tests should be based on the job psychograph. For example, if the operation analysis shows that finger dexterity seems to be involved, then it would obviously be wise to include in the experimental test battery a number of tests of such dexterities. In the battery from which tests were selected as described in "Predicting Success In Machine Bookkeeping" there were 25 tests. Three of these were chosen for the final test battery, although many others could have been used to advantage. It is interesting to note that none of the dexterity tests "panned out." Probably this is because accuracy and quickness of perception are so important for success in clerical work that manual dexterities are relatively unimportant.

Other Considerations

It is usually desirable that tests have what is known as "face validity." That is, they should be tests that "look good" to the applicant. A test of matching the markings on butterfly wings might be a very good test of perception and be a satisfactory predictor of clerical success. But it would look like a silly thing to do and applicants would consider it foolish. Matching numbers, however, looks sensible to clerks.

In any experimental test situation it is usually possible to find a great many tests already available, and for sale, which can be tried out on the particular operation. Sometimes, however, it is necessary to develop special tests for the purpose. Developing tests is something

[1] How this was done in one situation is described in detail in "Predicting Success in Machine Bookkeeping," *Journal of Applied Psychology*, December, 1943, p. 483.

beyond the powers of the average person and should be left to trained people. Many psychologists today are experienced in test construction.

One characteristic of tests should be mentioned. Some tests are a combination of different kinds of items. For this reason they are called "omnibus" tests. If such a test proves predictive of success, you still have to make a detailed analysis of the test to find out which items are effective. The other items are "dead wood" and might just as well be eliminated. Consequently, it is usually better to start with tests, each of which is comprised of only one kind of item. It is then possible to tell which test is doing the work.

Several tests are generally more dependable than a single test. This is because chance errors may affect a single test quite seriously in a given case, but are not likely to affect all tests equally at the same time and in the same way. In other words the errors will tend somewhat to average out if the battery consists of two or three or more tests. Practically, however, three or four tests is the usual limit of efficient test use. Beyond this the additional time and labor do not produce a commensurate additional increase in efficient prediction.

The Sample

A particular group of employees on whom we are going to try to validate a test is known as a "sample." Unnoticed variations in the characteristics of such groups who are being studied are a frequent cause of failure to validate. Some very peculiar sampling effects are encountered on occasion. In banks, for example, it is usual for bookkeepers to be allowed to go home after their accounts are posted and settled. Thus, there is an incentive for quick and accurate work. Likewise, there is a penalty for carelessness, since the bookkeeper must stay long enough to find her errors and correct them. If this policy of allowing the bookkeepers to go home when their work is finished is faithfully adhered to, the incentive to work rapidly and accurately is very great. This was one of the conditions which probably accounts in part for the very high validity coefficients reported in "Predicting Success in Machine Bookkeeping," referred to earlier.

Failure to validate the same tests in another bank was thought to be due to the policy of management of loading on more work whenever girls began to get finished early. In consequence they quit working so hard and all the girls produced at about the same rate, making it impossible to tell which ones were fast and which were slow.

Sometimes the "small" sample provides too small a base upon which to get a satisfactory validation. A small sample is usually considered to be less than about 30 cases. However, the actual dividing point between a small and a large sample is determined to a considerable degree by the characteristics of the sample itself. For example, in laboratory experiments of an agricultural nature small samples are commonly used. This, however, is because the variables can be better controlled than is the case when working with people.

It is important to eliminate extraneous variables and to control the sample in such a way that only one variable is operating at a given time. For example, men and women differ enough in some attributes that it becomes necessary to separate the two sexes in analyzing the data. Often age is a factor, too.

A common fallacy in attempting to develop a test is to assume that what is known as a large sample can be obtained by adding together a lot of small samples. The fact is that you can't make a good omelet out of bad eggs. This

was illustrated a couple of years ago in an insurance company. There were three groups of employees, totalling 41. The results when all 41 were put together were not as good as in one of the three groups taken by itself. This was because in the other two groups the range of scores was practically zero. It is impossible to determine a significant relationship between two variables if one of them does not vary. Consequently, it is better to attempt validation in several small groups than to hope that better results will be obtained by adding them together to make one large group.

One of the most extraordinarily successful validations with what would ordinarily be regarded as a small sample—27 typists—was conducted in 1951 in a large New York Company.[2] One single four-minute test correctly picked out 26 of the 27 typists. The article tells how all variables were controlled.

The measure of success was a two-week production score. Some of the variables which were controlled were: age, sex, schooling, experience, training on the job and type of work. This was done by taking girls right out of high school and putting them in a typing pool for a month. None had had a previous full-time position. All were from 16 to 19 years of age. All girls were placed in a "pool" and kept on typing from rough copy. Production was measured by keystroke counters and a careful record was kept of the exact time and the exact production. The reliability of the production measures was established by comparing production in one five-day period with that in another five-day period. This is the most successful validation of tests for the prediction of speed in typing which is on record and its success is due primarily to the great care in controlling all variables but one—speed of typing—and making all conditions as uniform as possible.

[2] See "Reducing Typing Costs with Aptitude Tests," by Arline Blakemore, *Personnel Journal*, May, 1951, page 20-24.

The Criterion

The most difficult part of test validation is the selection and use of the criterion. Criterion is merely a short term for "measure of success." It is very important to select the right criterion when validating tests. In baseball batting the criterion of success is the season's average. In a machine shop the criterion is usually the number of pieces of acceptable accuracy which are turned out in a given time. In clerical work the criterion is usually expressed in the same way. However, many people consider accuracy paramount in clerical work and occasionally accuracy has been selected as a criterion. It is seldom as satisfactory as speed of production, however.

In many situations satisfactory production records are not available. It is then necessary to resort to some other "measure of success," or "criterion." One such measure is ratings by foremen or supervisors. Such ratings are sometimes notoriously undependable, however, and great skill is needed to secure ratings which will make it possible to validate the tests. One way of doing this is to rank the operators from best to poorest. If too many workers are involved this becomes a burdensome task. Resort may then be had to assigning the employees to fifths or to "best quarter, middle half and lowest quarter." Paired comparison may also be used.

Most raters tend to give higher ratings to old employees than to newer ones. In a project at the Washington Gas Light Company several years ago, it was at first found impossible to validate the tests. However, when it was suggested that the ratings should be made in five-year age groups, it was found possible to secure a satisfactory validation coefficient. Under that method of rating,

old employees were rated against old employees and newer ones against one another, but old ones were not rated against newer ones.

The Work Sample As Criterion

Another type of criterion which is often effective is what is known as a "work sample." A work sample is a miniature task which is like the real task itself. Of course, work-sample criteria can usually be used only with experienced employees. Though it has never actually been put to the test, it is the writer's opinion that a work sample would be a much better criterion if some incentive or reward were given for high performance on the work sample and on the tests. Consider, for example, a situation involving 24 machine bookkeepers. These might be divided into three teams of eight bookkeepers each, with a reward offered to the team which had the highest average work sample score and the highest average test scores. This would make a game of it and would provide an incentive to all 24 bookkeepers to make the best possible record on the work sample and to achieve the highest possible scores on the test. It also would raise the correlation between the two. Otherwise, some would be alert and others slack.

After the decision as to what criterion is to be used, the next problem is to collect the material itself. If your employees are paid on a piecework basis there will not be much difficulty in getting the production record. Production records achieved under piecework methods are not always as good criteria as might be expected. This is probably because, as is well known, piece-workers sometimes hold back in order not to incur the disapproval of their fellow workers. Under such conditions the best workers often do not produce very much more than the poorest ones. Thus there are many pitfalls in gathering accurate information. However it is done, care must be taken to see that the information is accurate.

An interesting case where validation was difficult to achieve involved 57 bookkeeping machine operators in a bank. The first criterion to be used was a record of production, and it showed no relationship with test scores. The second time a production record was also obtained but, in addition, ratings of employees were made by supervisors. These supervisors had worked with the employees, and in most cases for quite a long time, so that they knew their work pretty well. Again the production record showed no relation to the tests, but surprisingly enough the ratings yielded a fairly good correlation with test scores. Subsequent discussion revealed that the gathering of production records had not been carefully supervised. It was found, for example, that some operators subtracted lunch-hour time, while others did not. Some eliminated the time required to find and correct errors, while others included this in their total time. There undoubtedly were other inconsistencies, but these alone are sufficient to explain why the criterion of production did not produce a satisfactory correlation with the test scores, whereas the ratings did. So many "bugs" can creep into a validation experiment that it is necessary to watch every detail with the utmost care.

Other Kinds of Criteria

Other criteria, which on occasion may be suitable, are number of promotions within a given period of time, job grade attained, and salary achieved after a given number of years. The choice of criterion depends on what you are trying to predict.

In many attempts to validate, the criterion which has been selected is the amount of material which has been learned in a given length of time. This is

usually a poor criterion, because there may be great differences in the amount learned by different people in the same length of time, but in the end they may nevertheless all perform the task itself about equally well. In other words, there is not necessarily a very close relation between the amount of time it takes to learn the task and the eventual proficiency with which the task can be performed. Learning time, therefore, should usually be avoided as a criterion.

Sometimes success is dependent upon a number of factors; or, to put it another way, the criterion is "multiple." This creates a difficult situation. The best way to handle it, if it is possible to do so, is to measure each element of success separately and then test for it separately. It is, of course, not always possible to do this. Actually, a multiple measure of success can sometimes be made—that is, several different measures of success can be combined into a formula expressed as a consolidated measure. A test or battery of tests can then be validated against this multiple criterion.

Many tests which are satisfactory in differentiating the better workers from the poorer ones fall down entirely when used with inexperienced applicants. When this happens it is usually because the test itself embodies some function which is contained in the job and which can be done better by experienced workers than by inexperienced ones. One way to find out whether this is so is to give the tests to experienced employees and, simultaneously, to a group of inexperienced ones. Calculate the mean score for each group and then determine statistically whether there is a "significant difference" between the two. If there is, then the test is one which favors the experienced worker. This proved to be so in a case situation referred to previously.[3] Cook's Filing Test was found to give a big advantage to experienced bookkeepers, as shown by the fact that their mean score was considerably higher than that of the inexperienced group.

The final problem regarding the criterion is that of measuring its dependability. This is usually referred to as "reliability," and is expressed by a coefficient of correlation between two measures of success of the same people. Many tests which have been validated in one situation have shown nothing in another situation because the criterion was unreliable. Technically, reliability means that two measures of the same thing will agree. If we take a record of the number of words per hour typed by Mary, Sally and Joan, we would expect, if Mary is best and Sally is next best and Joan is the slowest at one time, that they would be in the same order the next time. If so, the measure is a reliable one.

Validation Methods

There are two principal ways of validating. In one method tests are given to present employees. The criterion is selected and used and comparison is made between test scores and criterion figures for all employees. This is sometimes unsuccessful because the poorest workers have already left or been released. The range of job performance is greatly reduced, and validation becomes more difficult as the range decreases. It is essential that the range of test scores and the range of criterion measures from high to low show a good spread. If one of the two variables—either the test score or the criterion score—has no range or has a very slight one, then it is obviously impossible to find any relationship between them. The fact that there is a wide range in each case does not assure that a relationship will be found. But without a good range, certainly no relationship exists.

The other method is to give tests to

[3] "Predicting Success in Machine Bookkeeping," *op. cit.*

new employees but withhold test scores from interviewers. After the new employee has been at work long enough to measure his performance his name can be added to the validation group.

One difficulty with this method is that the entire validation group cannot usually be measured at one time and the criterion figures are therefore not always comparable.

A difficulty common to both methods is that of getting a large enough sample of employees doing exactly the same work. Another problem in all validity studies is that it is impossible to make small distinctions because of errors. Also, differences are less dependable when near the middle of the range than at the extreme. This is one reason why a restricted range is a serious handicap and why validation results become poorer the shorter the range of criterion scores as well as of test scores.

Statistical Methods in Validation

The most usual analysis of test results is to relate the scores on each test with the criterion measure. This is done by a process known as "correlation," a description of which will be found in any basic text on statistics. Unfortunately, business and industry present many situations in which correlation does not operate satisfactorily. This is too technical a matter to be discussed here, but usually better results are obtained, and with far less labor, by using "critical cutting scores" instead of resorting to correlation. A critical score is one which separates the best operators from the poorest ones. Since it will usually be found that two or more tests predict more efficiently than any single test, it then becomes important to determine the most efficient combination of cutting scores on the various tests, so that as many as possible of the good operators are selected by the tests, and the greatest number of poor operators are eliminated. A process for finding the most effective cutting scores is described elsewhere.[4] The article referred to shows how the best combination of cutting scores can be determined in any given situation. Of course, any such scores must be verified by repeating the experiment with another group of employees or applicants. Because of the many variations and errors which can creep in, it is not safe to depend on a single validation.

Finding multiple cutting scores is much easier than calculating the multiple coefficient of correlation. The advantage, however, is even greater when *using* the tests because it is then necessary to deal only with the actual scores obtained by the applicant. In using multiple correlation, on the other hand, it becomes necessary to multiply each test score by a factor, add them together, and then compare the result with the cutting score in the multiple correlation formula.

The reasons why multiple correlation does not always work are technical, but the principal one is that, in most smaller samples found in industry and business, "regression is not rectilinear." This is one of the assumptions on which product-moment correlation is based and without which it should not be used. Better results are actually obtained in most cases with multiple cutting scores. Consequently, if the process is easier to use and predicts better, there seems little reason for using the more traditional method of correlation.

Multiple correlation is based on the assumption that a high score on one of the tests in the "battery" will offset a low score on another test. This is not always so, because a low score sometimes means a complete lack of some essential ability. Furthermore, with multiple cor-

[4] See "Cross-Validation of Clerical Aptitude Tests," *Journal of Applied Psychology*, June, 1950, p. 153.

relation, the higher the score the more efficient the applicant is expected to be. This doesn't take account of the fact that excess ability often does not produce better performance. On the contrary, the employee is sometimes bored and gives a poorer performance. A case in point is where an employee is too intelligent for a simple task.

It should be repeated that tests should not be used for very long until they have been validated in the user's particular situation. It does not matter how often the tests have been validated elsewhere; the user should always look forward to validating them with his own group. In doing this, it is often a good idea to give two or three kinds of tests which are designed to accomplish the same purpose. This gives a comparison of the efficiency of different tests. It will often be found that the test which is currently in use will not do as good a job as some other test. Also, it may be possible to shorten the time by finding another test which is as valid as the test currently used but which requires less time for administration.

The Open-Door Policy in Operation: *A Case Study*

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Theoretically, at least, the "open-door" policy—whereby the worker is encouraged to bring his problems directly to upper management at any time—has been widely accepted as a vehicle for improved communication. Its practical application presents certain problems, however—since workers often hesitate to by-pass their immediate supervisors—who, in turn, may feel justifiably resentful if they do. The solution in one company was to integrate the "open-door" concept with an employee council program based upon multiple management, as described in this case account.

LIKE MANY OTHER companies in the variety retail chain store field, whose operating units are highly dispersed, the W. T. Grant Company is faced with the constant problem of maintaining high employee morale. Its successful approach to this problem is chiefly attributed to an "open-door" policy which was made more effective in 1951 with the adoption of an employee council program. The major purpose of these employee councils is to make constructive recommendations on all matters that will improve the company. At the present time, two councils have been organized to represent approximately 1,200 employees, and it is probable that all employees will soon be included. The W. T. Grant Company's em-

* During the summer of 1952, the author was granted a fellowship with the W. T. Grant Company through the College-Business Exchange Program of the Foundation for Economic Education, Inc.

ployee council idea is a modified version of the multiple management principle that originated in McCormick & Company, Inc., of Baltimore, Maryland.

Background

In 1932, McCormick & Company, Inc. adopted a multiple management program that encourages their 1,500 employees to share in both the management and profits of the company through three elective employee boards—the junior board of directors, the factory board, and the sales and advertising board—whose principal function is to feed ideas to the senior board of directors. A major aim of the McCormick multiple management plan is to eliminate one-man rule and to develop executives in accordance with their merits rather than their ages. The program has been so successful that today more than 500 companies of various sizes have adopted multiple management plans based on the original McCormick & Company idea.

The W. T. Grant Company considered the multiple management idea for three years before it adopted its present employee council program. Under the leadership of its founder and present chairman of the board of directors, Mr. William T. Grant, this relatively young company has expanded from a small store opened in 1906 in Lynn, Massachusetts, to almost 500 stores located in 444 cities and 39 states. Seven of the stores are unionized at the present time. The general headquarters and buying offices are located in New York City. The company is divided into four regions—Eastern, Central, New England, and Southern.

Employee Council Program

The W. T. Grant Company's employee council program was adopted in 1951 with the advice and encouragement of top management executives including President Edward Staley, Executive Vice President Louis Lustenberger, Personnel Director Chester Whitman, and the four regional managers. The program provides for a New York Office Employee's Council and a Store Manager's Council to represent directly 625 office employees and 500 store managers. In effect, however, about 20,000 other employees are represented by the Store Manager's Council because it considers suggestions made by any company employee. The objectives of these councils are the same—to make more effective the principle of open-door management. Each council is free from company interference in the formulation of its by-laws, and in the determination of its organization and method of operation. Top management is permitted to attend council meetings by invitation only. The travel and meeting expenses are paid by the company. All council recommendations or suggestions are submitted in writing directly to the president of the company. It is mandatory for top management to consider all council recommendations and suggestions, and to present a written reason for the partial acceptance or rejection of any ideas not fully accepted.

Store Manager's Council

The Store Manager's Council held its first meeting in May, 1951. The council membership consists of two members from each of the four regions. The managers must have 10 or more years of service to be eligible for membership. The term "store managers" includes both merchandising and operating managers. The election of members is held in May of each year. Five managers in each region are nominated and the candidate receiving the most votes serves for a term of two years. No member can be elected for more than two consecutive terms. Regular council meetings are held in January, May and October. These meetings are limited to three days in length

and are always held in New York. The officers of the council are chairman, vice chairman, and secretary. They hold office for one year and may be removed at any time by an affirmative vote of the entire council. One of the major internal problems of this council is to dispose of all business during the regular meetings. This difficulty arises because the members are widely scattered and most of the major decisions of the council are made at the regular meetings.

New York Office Employee's Council

The first meeting of the New York Office Employee's Council was held in July, 1951. This council consists of six members employed in the New York Office who are not on the executive payroll. Each member serves a two-year term and has at least five years' continuous service with the company. When a council vacancy is filled by an election in any of the six office employee groups, three employees are nominated and an election is held on the first Friday in June.

The present system requires the election of three council members each year. No member can be nominated or elected for more than two consecutive terms. Regular meetings are held on the second Tuesday of every month, and if this is a holiday, the meeting is held the following day. The council officers include a chairman, vice chairman, and a secretary. They serve a one-year term and are elected at the first regular meeting that follows the annual election of council members.

Progress of the Program

Thus far, both the employees and the management of the company have been satisfied with the progress of the program. Many valuable suggestions have been made regarding such problems as a proper inventory date, increased vacation allowances for employees with 15 or more years of service, proper orientation of trainees, merchandise pricing policy, and "a half day off for managers each week." Following is a summary of the total number of suggestions made and accepted as of September, 1952:

The Store Manager's Council Suggestions

Accepted	11
Received and rejected by the council	40
Pending further discussion and decision	6
Total number of suggestions received	57

The New York Office Employee's Council Suggestions

Accepted	14
Received and rejected by council	10
Pending further discussion and decision	5
Total number of suggestions received	29

Many of the suggestions sent to the councils were duplications. The above statistics, however, exclude the duplications and include only the total number of suggested subjects. The high rate of rejection is largely the result of conflicting interpretation of the store manual; excessive clerical costs; unreasonable demands on management for greater assurance of economic security; lack of familiarity with company policies on such matters as the exchange of merchandise; and failure to use existing channels of communication, rather than the councils, for matters of lesser importance.

Improvements for the Future

While neither management nor the councils can suggest any major improvements in the existing open-door policy, one important plan has been proposed: to develop individual store councils with the same objectives and organizational procedure as the two councils now operating so successfully. Several stores have organized these councils, and the reports are so encouraging that the regional managers are now considering the compul-

sory extension of this idea to all stores in their regions. As time goes by, the employee councils program may be utilized still further to select and develop executive personnel—an important objective of multiple management in McCormick & Company, Inc.

Conclusion

The utilization of employee councils has substantially increased the value of the open-door policy in the W. T. Grant Company. The success of the councils depends largely on the encouragement and cooperation of management, and the interest and active participation of the employees. The most important advantage of the employee council program is that it enables the employee to recognize the complexity of management problems and to be assured that the interests of the employees always receive first consideration. As a result of its success to date, the program will probably be further extended—particularly in the area of executive development—as the company continues to expand.

Across the Table:

A Simple Device for Improving Conference Discussion

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RECENTLY I attended a series of discussion meetings with about 50 other people, all working in the field of industrial relations. As might be expected, one of the problems of central interest to the group was that of intra-organizational communication. The discussions of this problem were illuminating, and so was some of the behavior of the conferees which occurred during the more spirited debates while their minds were so fully occupied by the talk that they were unaware of their actions.

Some of the conferences were held in a large room almost entirely filled by a very large table. The conferees were spaced at comfortable intervals around the table. Other meetings were held in a more conventional meeting room in which the conferees were seated as an audience in rows, with the leader placed at a speaker's stand before them.

"Sub-Discussions" Discouraged

The discussions which were held across the table were much more successful than those held in the conventional meeting place—apparently because it proved to be difficult, in the latter meeting room, to keep side discussions from cropping up between conferees seated close together. These side discussions usually started with whispers which increased in volume to generally audible monotones, in some cases finally resulting in disturbance to the whole group. On the other hand, the discussions which were held across the table were only rarely interrupted by side conversations since, for one thing, the conferees were seated far enough apart to make it difficult to start private conversations.

Thus the table seemed to serve as a useful mechanical device for facilitating discussion by

preventing the development of tangential debate. This observation seems to suggest that, while people must be brought together if there is to be any interchange of ideas at all, they should not be brought too close together. We might almost suggest an "arm's length rule" for those who get together—round-table fashion, or otherwise—for the purpose of exchanging ideas.

There was no question about the sincerity of the conferees or the proficiency of the leaders. Everyone wished to follow the main stream of the talk. Nobody was rude, and the side exchanges which developed in the absence of the table sprang from nothing more than an earnest interest in the subject. Nevertheless, the very earnestness of the conferees led to a development which was not desirable, and the whole experience seemed to indicate that something more is needed than willingness to try hard for effective communication.

A Practical Means of Control

Of course, there are other devices for controlling discussion. One of the most effective is limitation of the size of the discussion group. At times, however, as in this case, such limitation is impossible, and even when it is possible, a good-sized table should still be helpful. Most other control devices are of a type which must be exercised by the leader, and will not automatically and mechanically lead to better discussion, regardless of the quality of the leadership.

Considering the interest in and knowledge of communication held by these particular conferees, it was most disconcerting to see how far off the subject the side conversations led them, and how much of the thread of the main discussion was missed by those who took part. When we consider the serious problems of communication among people who are not even located together in the same room and who have much less incentive than these conferees to achieve a meeting of minds, it becomes evident that consideration of any device for increasing the mechanical effectiveness of communication is worthwhile.

We recommend more and bigger tables and further research on the problem.

Guide to Wage Surveys Published by BLS

HOW MUCH DO stenographers make in New York? What are the wages of machinists in Pittsburgh? How much more does a cutter in a dress factory earn today than he did in 1945?

To answer questions like these, of vital interest to the businessman, the worker, and the labor union, the U. S. Labor Department's Bureau of Labor Statistics has been conducting a program of wage surveys designed to show prevailing scales for important jobs. In order to aid these groups in tapping the wealth of information available to them, the Bureau has just published a *Directory of Industry Wage Surveys.*

The new 18-page directory lists all surveys of wages made by the Bureau in New York, New Jersey, Pennsylvania and Delaware since 1945. It tells which industries have been covered, and indicates the cities in which information has been collected.

Copies of the New Directory of Industry Wage Surveys are free of charge, and may be obtained from the U. S. Bureau of Labor Statistics, 341 Ninth Avenue, New York 1, New York.

FACTORY WORKERS' AVERAGE HOURLY EARNINGS have risen by 18 cents, or 11½ percent since January 1951, when the wage stabilization program was initiated. Most of this gain resulted from cost-of-living and other wage rate increases allowed under wage stabilization policy. In January 1953, shortly before the lifting of wage controls, hourly earnings of factory workers averaged $1.73, including overtime and other premium pay, according to preliminary estimates.

Setting Piece Rates on Repeat Jobs:

Aid to Better Personnel Relations and Lower Costs

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If piece rates are not set scientifically, to allow for the adverse effect of too low or too high a rate on employee morale and unit cost, the need for revision will become too obvious to be ignored. The process of readjustment will then be a source of embarrassment to management and of confusion and even resentment to the individual employee. Hence the importance of such a system as is here described for determining that job-pricing area within which workers will earn wages above their day rate and cost per unit will be held at a reasonable level.

WHEN PRODUCTION WORKERS are paid on a piecework basis, the cost per unit is directly related to the quality of the work of job-pricing. The pieces turned out per worker per hour are thus a function of the price paid. There are two conditions which influence the precise way in which the relationship works: (1) Often there is a contract with the employees specifying a minimum rate of pay per hour, regardless of output. If a particular job is priced too low, workers will be inclined to accept this "day rate." (2) If, however, the job is priced too high, there will be a tendency to hold down output. Between the two extremes is an area of job-pricing within which production employees will earn wages above the day rate and will at the same time reduce unit costs. A hypothetical example, based on the making of drop forgings, is shown in the accompanying table. The principles set forth in this article should apply equally well to any business concerned with rates for piecework on roughly comparable jobs.

Basic Theory

When the job is priced at $17.60 per 100, the total cost per forging is $0.586. When the price is $20.80 per 100, the total unit cost per forging is $0.489. Up to and including the price of $17.60, the amount of work turned in is nominal; the cost per forging is governed by the day rate rather than by the piece rate. At a price of $19.20, the heater and trimmer will make $13.75 per day each, and the operator will make $16.50. In this case they get, respectively, $1.75 and $1.50 for the *last* 50 forgings. This, incidentally, is pay at rates below the ostensible rates of $5.50 and $6.60 which they get per 100 when the job is priced at $17.60. At $20.80 the total cost per unit reaches its lowest point.

The problem is to determine the optimum price. Some operators will obtain an optimum output at lower prices than will others. The rate should be set so that, in consideration of all operators who may be expected to run the job, the cost per unit is approximately minimized. If records are analyzed for comparable jobs, it will be shown that the amount of work turned out by various operators will form some sort of frequency distribution. In addition, if cost per unit is plotted against price, it will be possible empirically to determine the efficacy of

RELATION BETWEEN JOB PRICE AND OPERATING COST PER UNIT

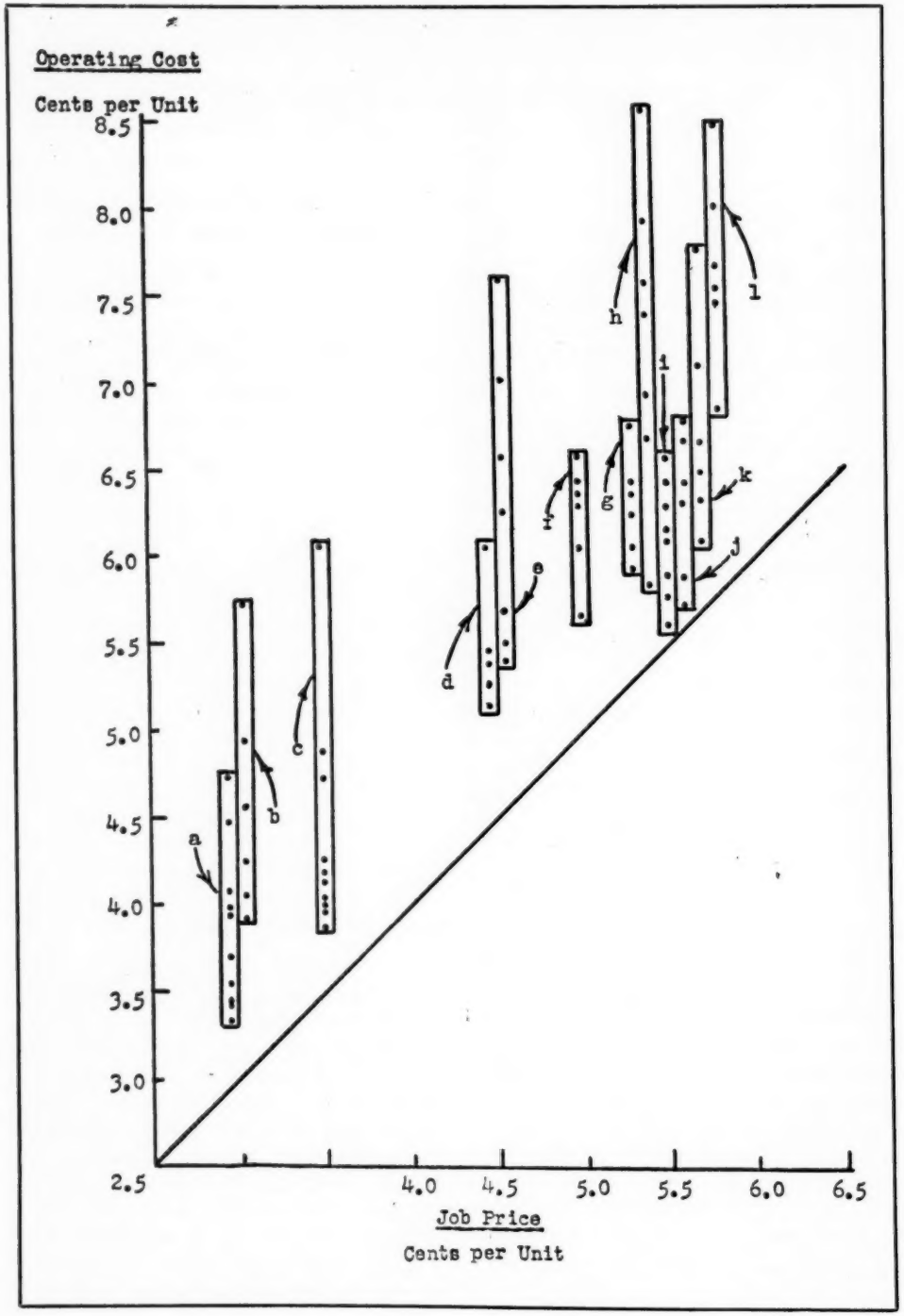
EFFECT OF DIFFERENT JOB PRICES ON UNIT COSTS IN A DROP-FORGE PLANT

	Price per Hundred	*Number Made*	*Direct Wages*	*Direct Wages per Unit*	*Overhead (Total, $80) per Forging*	*Total Unit Cost per Forging*
Trimmer	$ 5.00		$12.00			
Heater	5.00		12.00			
Operator	6.00		15.00			
Total	$16.00	200	$39.00	$0.196	$0.400	$0.586
Trimmer	$ 5.50		$12.00			
Heater	5.50		12.00			
Operator	6.60		15.00			
Total	$17.60	200	$39.00	.196	.400	.586
Trimmer	$ 6.00		$15.00			
Heater	6.00		15,00			
Operator	7.20		18.00			
Total	$19.20	250	$48.00	.192	.320	.502
Trimmer	$ 6.50		$17.87			
Heater	6.50		17.875			
Operator	7.80		21.455			
Total	$20.80	275	$57.20	.208	.291	.489
Trimmer	$ 7.00		$20.16			
Heater	7.00		20.16			
Operator	8.40		24.19			
Total	$22.40	288	$64.51	.224	.278	.492
Trimmer	$ 8.50		$20.40			
Heater	8.50		20.40			
Operator	10.20		24.48			
Total	$27.20	240	$65.28	.272	.333	.595

the pricing job to some degree and to suggest courses of action. In the actual pricing of the job, it should be stated parenthetically, it may be desirable to set the rate slightly higher than a purely mathematical interpretation of the results would call for. This is for the purpose of encouraging a better class of workers to look upon the shop as a desirable place to work in the long run. The company gets something for its money in this case. It gets nothing in return for the additional costs involved in a poor job-pricing system.

Procedure and Interpretation

Specific steps in the procedure and the interpretation of results are as follows: The different jobs should be arranged according to price. Presumably each job is run several times in the course of, say, a year. If it is run continuously, individual weeks or months can be regarded as separate runs. Whether a job is run often or rarely has little bearing on the usefulness of the method of analysis. The operating cost per unit is calculated for each time that a job is run. It is clear that the cost per unit can never be lower


Operating Cost
Cents per Unit
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
a
b
c
d
e
f
g
h
i
j
k
l
4.0
4.5
5.0
5.5
6.0
6.5
Job Price
Cents per Unit

than the price per unit. Cost per unit may be moderately higher than price per unit, reflecting time involved in setting-up and a modicum of downtime, or the cost per unit may be much higher than the price per unit. The latter condition leads to suspicion that operators are not working for production, which suspicion can be verified or rejected by examination of the time records. A third possibility is that the cost per unit may tend to be close to the price per unit. This can happen only when the job is priced so high that workers are satisfied without stating the full amount of time on setting-up and ordinary repairs. If so, it is very likely that a full day's wages are earned comparatively easily on this job.

The effects of variations in the accuracy of pricing jobs are illustrated by the accompanying chart. The bars enclose the distributions of cost per unit values for separate runs of 12 different jobs. The x-axis gives the price of the job, the y-axis the cost per unit on each run. In practice the following steps will aid in interpreting the results:

1. Determine the value of $y = a + bx$, using all items. Extreme values of y may be omitted in this calculation if, for example, a major breakdown should be known to have caused an extraordinarily high operating cost per unit on a certain run.
2. Determine the standard error of estimate of cost per unit from price per unit.
3. Establish control limits for means for each job-group size occurring.
4. Determine and plot the mean of each subgroup.

This device leads to the mathematical determination of the standards—good, bad, or indifferent—of job-pricing at the plant. When the mean cost per unit for a particular job is above the upper control limit, it is deduced that the job is underpriced. A point below the lower control limit is interpreted as meaning that the job is overpriced. Eliminating data on jobs outside the control limits and recalculating the limits will provide preliminary adjustment leading to a nearer approximation of what the control limits should be, regardless of what may be the case at the time the study is started. Since the patterns of costs per unit on the different jobs can be expected to be consistent within themselves, more jobs can be expected to be thrown outside the control limits than would follow from ordinary probability theory, thus increasing the power of this method of analysis.

Once the data on job runs are plotted, as in the chart, much can be learned even without resort to statistical methods. We suspect that jobs *b*, *e*, *h*, and *l* are priced too low. Job *c* is not included in this group because, although *c*'s range is equal to that of some of the others, *c* is heavily concentrated at the low end of the bar. Unless other known facts point to a contrary conclusion, the above-mentioned jobs should be reconsidered for possible higher pricing. The records on jobs *i* and *j* lead us to suspect that the workers are stretching the work. It is recommended that *i* and *j* be reconsidered as to the possibility of reducing their prices.

Potential Use

Through a continuing program of adjustment by this kind of analysis, it is expected that the control limits of the job-pricing process will be narrowed down and that the response of operators to the different jobs will become more uniform. Uniformity as an abstract concept, admittedly, has no special merit. The merit of uniformity in this case is that prices are being steered toward the values which will set unit costs uniformly

at their minimum points for all jobs.

The problem calls for the attention of a person who understands personnel relations and has a working knowledge of statistical methods and the technical problems of the job. There are two phases of the whole problem: (1) to keep down the per unit cost of the job immediately at hand and (2) to attract and hold an efficient working force. With a job-pricing program which is inadequate in that it does not take account of psychological and technical facts, one of these objectives will be sacrificed in order to gain the other. For instance, it is possible to hold a good working force on the basis that every now and then the individuals will have a turn at a job which is priced too high. The balance of the time will be spent on moderately priced jobs and jobs which in reality pay little, if anything, more than the minimum day rate. A pricing program which involves such a mixture of "lemons" and "plums" is a program which will cost the company money and encourage politicking for the overpaid jobs. It will be an expensive way to hold good workers. A comparatively small amount of study of the way in which operators and their helpers respond to different prices for comparable jobs should improve the interest and morale of the employees and, incidentally, reduce costs.

The Fight Against Fatigue

INDUSTRY, with its resources of medical research and engineering know-how, is finding on-the-job cures for that too-tired feeling which sometimes comes at the end of a day's work.

At the Du Pont Company, for example, where extensive research has been conducted to determine its causes and early symptoms, fatigue has been reduced by lowering heat and humidity, by increasing ventilation and by evolving a schedule of rest periods adequately spaced and of sufficient duration. Where high heat and humidity in the plant cannot be remedied, workers rest at regular intervals in an air-conditioned room where temperature and humidity are controlled at a comfortable level.

Years of research have established the fact that increases in an individual's pulse rate and temperature following muscular exertion, and the time it takes these reactions to start back toward normal levels, can be relied upon to measure the amount of physical stress caused by work and the fatigue it is apt to induce.

This, according to Dr. Lucien Brouha, of the company's Haskell Laboratory of Industrial Toxicology, is what happens when the plant physiologist, with stop watch and clinical thermometer, starts to ferret out fatigue, and its causes, on a particular job: Immediately following a work period, he records the pulse rate of workers at rest three times at one-minute intervals. Thus he determines pulse increases caused by exertion and the rates at which the pulse returns towards "resting levels." Body temperatures also are measured during the same four-minute rest period. The procedure is repeated throughout the working shift. If the average rise in pulse and temperature is found to be progressive or if the recovery to the "resting level" is too slow at any time during the shift, the physician knows that something about job activity or working conditions is causing employees to draw too heavily upon physical reserves.

In many instances, Du Pont's studies of working stresses have determined where mechanization would be most efficient in reducing fatigue or the extent to which work crews should be increased. Sometimes the working position of the body is such as to tax muscles which do not produce mechanical work but merely help to maintain balance. In one case, fatigue was markedly reduced by building a platform so that employees could work at waist instead of shoulder height.

Whenever a change in job practices is made, heart rate and body temperature measurements can be used to determine whether the modifications have been effective in reducing the stress of the work.

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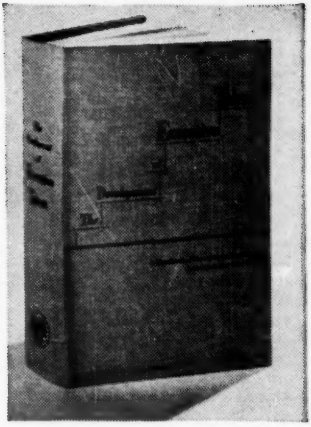

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